NW1/4, SW1/4, SEC. 20, TWP. 24N., RGE. 6 E., W.M.

MILANO ISSAQUAH APARTMENTS

CITY OF ISSAQUAH, WASHINGTON

LEGEND

STORM LEGEND

- STORM PIPE
- STORM STRUCTURE
- STORM SERVICE
- STORM PIPE FLOW ARROW
- EXISTING STORM PIPE

SEWER LEGEND

- SEWER PIPE
- SEWER STRUCTURE
- SEWER SERVICE
- SEWER PIPE FLOW ARROW
- SEWER EASEMENT
- EXISTING SEWER PIPE

WATER LEGEND

- WATER MAIN
- WATER FITTING
- FIRE HYDRANT
- WATER METER
- FIRE DEPARTMENT CONNECTION
- PRESSURE INDICATING VALVE
- WATER EASEMENT
- EXISTING WATER PIPE

ROAD LEGEND

- CURB LINES
- GUTTER LINES
- ASPHALT ROAD
- ASPHALT ROAD PATTERN
- SIDEWALK
- CONCRETE PATTERN
- HANDICAP RAMP
- SAWCUT
- OVERLAY
- DEPRESSED SIDEWALK

SITE LEGEND

- SITE RETAINING WALL

SURFACE LEGEND

- EXISTING GROUND SURFACE TEXT (CONTOUR LABELS)
- EXISTING GROUND CONTOUR MAJR
- EXISTING GROUND CONTOUR MINR
- FINISH GRADE SURFACE TEXT (CONTOUR LABELS)
- FINISH GRADE CONTOUR MAJR
- FINISH GRADE CONTOUR MINR
- LIMITS OF WORK
- PROPERTY LINE
- RIGHT OF WAY
- CENTERLINE

PARKING PROVIDED-P1

STANDARD STALLS– SURFACE	27
COMPACT STALLS	12
5 X 2 TANDEM PARKING	
TOTAL STALLS	49

PARKING PROVIDED-P2

STANDARD STALLS– SURFACE	22
COMPACT STALLS	17
7 X 2 TANDEM PARKING	
TOTAL STALLS	53

SEE ARCHITECTURAL PLAN SHEETS FOR INTERIOR PARKING LAYOUT.

OUTDOOR LOADING PROVIDED

STANDARD STALLS– SURFACE	2
PARALLEL	1
TOTAL STALLS	3

SITE INFORMATION

ASSESSOR'S PARCEL NUMBERS	202406–9057	
GROSS SITE AREA	1..33 ACRES	(57,928± SF)
DEVELOPABLE SITE AREA	1.27 ACRES	(55,321± SF)
GROSS FLOOR AREA	2.12 ACRES	(92,446± SF)
FLOOR AREA RATIO (FAR)	2.51	
NUMBER OF DWELLING UNITS	101	
IMPERVIOUS SURFACE AREA	0.73 ACRES	(31,800± SF) = 57.0%
PERVIOUS SURFACE AREA	0.54 ACRES	(23,500± SF) = 43.0%
PLANNING AREA	CENTRAL ISSAQUAH PLAN	
PLANNING DISTRICT	WESTERN GATEWAY	
ZONING	VR (VILLAGE RESIDENTIAL)	
DRAINAGE BASIN	SCHNEIDER CREEK	
DRAINAGE SUB–BASIN	SUMMERHILL	
STANDARDS	CENTRAL ISSAQUAH DEVELOPMENT & DESIGN STANDARDS	
REQUIRED SETBACKS	FRONT = 0' MIN. SIDE = 0' MIN. REAR = 0' MIN.	
CONSTRUCTION TYPE	WOOD CONSTRUCTION PER IRC	
MAXIMUM HEIGHT	5–STORIES ABOVE GRADE	
FIRE FLOW RATES	TBD (SPRINKLER'D & FIRE RESISTANT WALLS)	
UTILITY PURVEYORS		
WATER	CITY OF ISSAQUAH	
SANITARY SEWER	CITY OF ISSAQUAH	
STORM DRAINAGE	CITY OF ISSAQUAH	
TELEPHONE	QWEST COMMUNICATIONS	
POWER	PUGET SOUND ENERGY	
GAS	PUGET SOUND ENERGY	
CABLE TV	COMCAST	
GARBAGE/RECYCLING	RECOLOGY	
OTHER SERVICES		
SCHOOL DISTRICT	ISSAQUAH SCHOOL DIST. 411	
FIRE PROTECTION	EASTSIDE FIRE AND RESCUE	

LEGAL DESCRIPTION

THAT PORTION OF SECTION 20, TOWNSHIP 24 NORTH, RANGE 6 EAST, WILLAMETTE MERIDIAN, IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY MARGIN OF STATE HIGHWAY NO. 2–D AT A POINT 149.08 FEET NORTH, AS MEASURED AT RIGHT ANGLES, OF THE NORTH LINE OF SAID SOUTHWEST QUARTER OF SECTION 20, SAID NORTH LINE BEARS NORTH 89°40'52" EAST;
THENCE SOUTH 88°21'25" EAST 501.50 FEET;
THENCE SOUTH 2°17'08" WEST 405.95 FEET;
THENCE NORTH 87°53'56" WEST 209.11 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 14°17'00" WEST 357.12 FEET, MORE OR LESS, TO SAID EASTERLY MARGIN OF HIGHWAY;
THENCE NORTHERLY ALONG SAID HIGHWAY MARGIN 450.10 FEET, MORE OR LESS, TO A POINT THAT BEARS NORTH 87°53'56" WEST FROM THE TRUE POINT OF BEGINNING;
THENCE SOUTH 87°53'56" EAST 250.48 FEET MORE OR LESS, TO THE TRUE POINT OF BEGINNING;

SITUATE IN THE CITY OF ISSAQUAH, COUNTY OF KING, STATE OF WASHINGTON.

REQUIRED PERMITS

SITE DEVELOPMENT PERMIT
BUILDING PERMIT
NPDES PERMIT
RIGHT OF WAY USE PERMIT

OWNER/APPLICANT

MILANO APARTMENTS
12224 NE 8TH ST
BELLEVUE, WASHINGTON 98005
CONTACT: HOSSEIN KHORRAM
PH: (425) 455–0375

CIVIL ENGINEER/SURVEYOR & LANDSCAPE ARCHITECT

CORE DESIGN, INC
12100 NE 195TH ST, SUITE 300
BOTHELL, WASHINGTON 98011
CONTACT: GARRETT C. BENSON, P.E. (ENGINEER)
GLENN R. SPRAGUE, P.L.S. (SURVEYOR)
JOSH P. BEARD, A.S.L.A. (LANDSCAPE ARCHITECT)
PH: (425) 885–7877

ARCHITECT

D/ARCH LLC
2412 WESTLAKE AVE N
SEATTLE, WASHINGTON 98109
CONTACT: MATT DRISCOLL
PH: (206) 547–1761

GEOTECHNICAL ENGINEER

GEOENGINEERS
17425 NE UNION HILL ROAD
CONTACT: DEB OVERBAY
PH: (425) 861–6000

TRAFFIC

TENW
11400 SE 8TH STREET
BELLEVUE, WASHINGTON 98004
CONTACT: ELYSE STEMMLER
PH: (425) 250–5004

WETLAND/FOREST ECOLOGIST

TALASAEA CONSULTANTS, INC.
15020 BEAR CREEK ROAD NORTHEAST
CONTACT: KELLEN MALONEY
PH: (425) 861–7550

ARBORIST

DAVEY RESOURCE GROUP INC.
18809 10TH AVE NE
SHORELINE, WA 98155
CONTACT: TRAVIS WEST
PH: (253) 656–1650

N

VICINTY MAP
1" = 2000'

SHEET INDEX

CIVIL

LANDSCAPE

AS-BUILT NOTICE
CONTACT PROJECT SURVEYOR PRIOR TO BACKFILLING TO LOCATE AS– CONSTRUCTED FACILITIES TO MEET CITY OF ISSAQUAH REQUIREMENTS!

UNDERGROUND LOCATOR SERVICE
CALL BEFORE YOU DIG!

ONLY SHEETS WITH AUTHORIZING SIGNATURES HAVE BEEN APPROVED FOR CONSTRUCTION

SWXX-XXXXX

NO.	REVISIONS PER CITY COMMENTS	DATE
1		6/24/21

6-24-21

CORE DESIGN
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
SURVEYING
12100 NE 195th St, Suite 300, Bothell, Washington 98011 425.885.7877

COVER SHEET
MILANO ISSAQUAH APARTMENTS
HOSSEIN KHORRAM
12224 NE 8TH ST
BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	GARRETT BENSON
DRAWN	GB / JRC
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

SHEET
SDP-01
PROJECT NUMBER
19070

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NW1/4, SW1/4, SEC. 20, TWP. 24 N., RGE. 6 E., W.M.

VERTICAL DATUM

NAVD 88

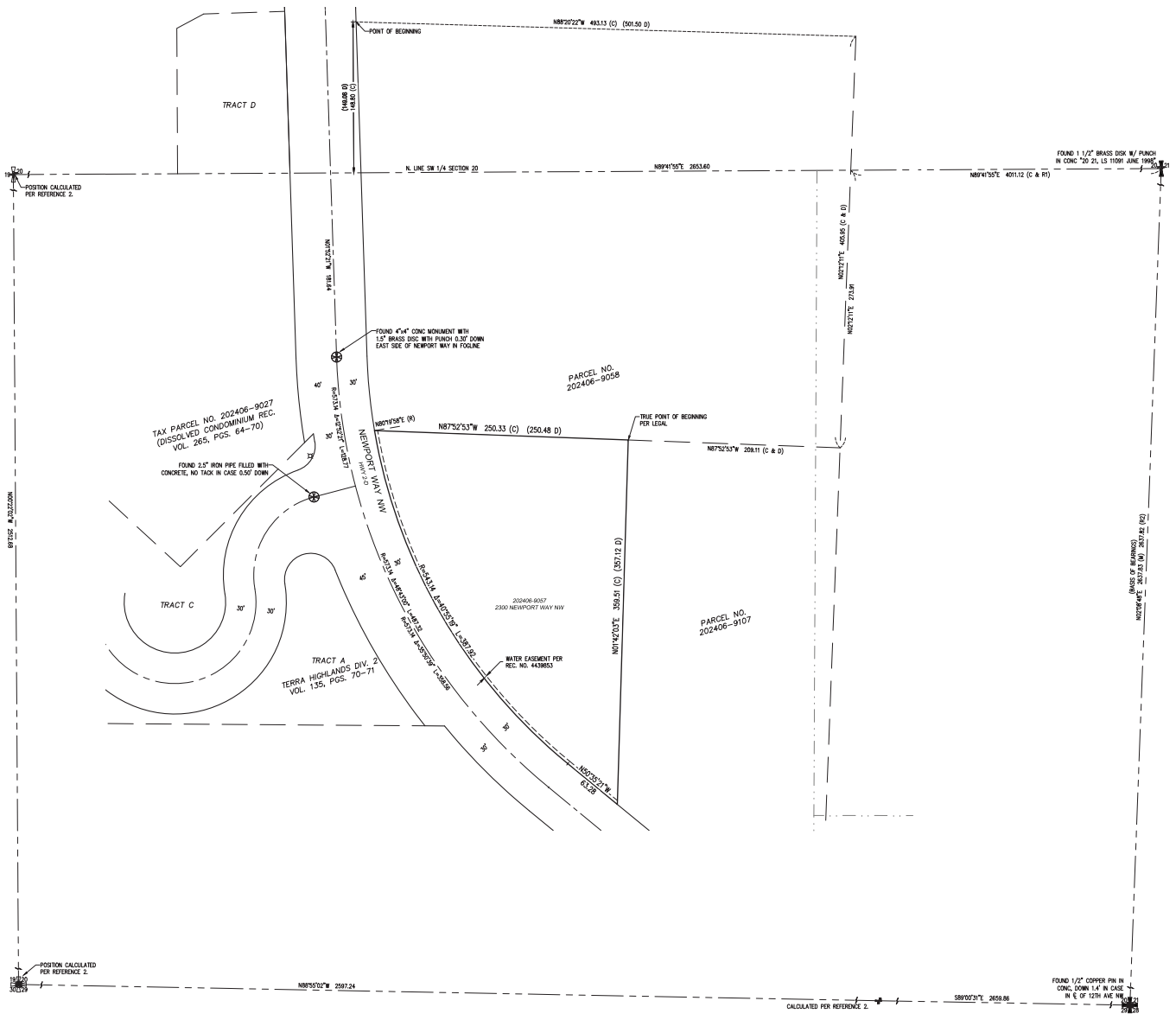
BENCHMARK

SET NAIL WITH WASHER AT THE BEGINNING OF TURN LANE 0.50' FROM EDGE OF ASPHALT ON NEWPORT WAY PER GPS DERIVED POSITION
ELEV.= 86.21

LEGEND

- MB MAIL BOX
- BOLLARD
- SEWER MANHOLE
- GAS METER
- COMMUNICATION PEDESTAL
- COMMUNICATION VAULT
- COMMUNICATION LINE
- POWER VAULT
- PEDESTRIAN CROSSING
- TRAFFIC CONTROL BOX
- STREET LIGHT
- STREET SIGN
- POWER POLE
- GUY ANCHOR
- WETLAND FLAG AND NUMBER
- MONUMENT
- FIRE DEPARTMENT CONNECT
- WATER MARKER
- WATER VALVE
- WATER METER
- WATER BLOW OFF
- IRRIGATION CONTROL VALVE
- STORM DRAIN MANHOLE
- STORM DRAIN CATCH BASIN (TYPE 2)
- STORM DRAIN CULVERT
- STORM DRAIN CATCH BASIN
- BWF BARBED WIRE FENCE
- CLF CHAIN LINK FENCE
- P/A PLANTED AREA (TYP.)
- TON TOP OF NUT
- DECIDUOUS TREE
- EVERGREEN TREE
- C CEDAR
- M MAPLE
- F FIR
- B BIRCH
- FR FRUIT
- A ALDER

SCALE: 1" = 50'
0 25 50 100



BASIS OF BEARINGS

N02°08'48"E, BETWEEN THE EAST QUARTER CORNER AND SOUTHEAST CORNER OF SECTION 20, TOWNSHIP 24 NORTH, RANGE 6 EAST, W.M. PER REFERENCE 2.

REFERENCES

1. RECORD OF SURVEY AS RECORDED IN VOLUME 40 OF SURVEYS, AT PAGE 29, UNDER RECORDING NUMBER 8405119004.
2. CITY OF ISSAQUAH LOT LINE ADJUSTMENT NO. 97-02 AS RECORDED IN VOLUME 114 OF SURVEYS AT PAGES 1274-1279, UNDER RECORDING NUMBER.

LEGAL DESCRIPTION

THAT PORTION OF SECTION 20, TOWNSHIP 24 NORTH, RANGE 6 EAST, WILLAMETTE MERIDIAN, IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY MARGIN OF STATE HIGHWAY NO. 2-D AT A POINT 149.08 FEET NORTH, AS MEASURED AT RIGHT ANGLES, OF THE NORTH LINE OF SAID SOUTHWEST QUARTER OF SECTION 20, SAID NORTH LINE BEARS
NORTH 89°40'52" EAST;
THENCE SOUTH 88°27'25" EAST 501.50 FEET;
THENCE SOUTH 21°08" WEST 405.95 FEET;
THENCE NORTH 87°53'36" WEST 209.11 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 1°47'00" WEST 357.12 FEET, MORE OR LESS, TO SAID EASTERLY MARGIN OF HIGHWAY;
THENCE NORTHERLY ALONG SAID HIGHWAY MARGIN 450.10 FEET, MORE OR LESS, TO A POINT THAT BEARS NORTH 87°53'36" WEST FROM THE TRUE POINT OF BEGINNING;
THENCE SOUTH 87°53'36" EAST 250.48 FEET MORE OR LESS, TO THE TRUE POINT OF BEGINNING;

SITUATE IN THE CITY OF ISSAQUAH, COUNTY OF KING, STATE OF WASHINGTON.

RESTRICTIONS

1. THIS SITE IS SUBJECT TO AN EASEMENT FOR WATER PIPELINE AND APPURTENANCES AND THE TERMS AND CONDITIONS THEREOF AS RECORDED UNDER RECORDING NUMBER 4439853. AND IS SHOWN HEREON.
2. THIS SITE IS SUBJECT TO AN EASEMENT TO MAKE NECESSARY SLOPES AND CUTS OR FILLS RECORDED UNDER RECORDING NUMBERS 2474923 AND 2716847. NOT PLOTTABLE.
3. THIS SITE IS SUBJECT TO COVENANTS AND CONDITIONS RECORDED UNDER RECORDING NUMBER 5234474. NOT PLOTTABLE.
4. THIS SITE IS SUBJECT TO A RIGHTS OF DRAINAGE DISTRICT NO. 4 AND THE TERMS AND CONDITIONS THEREOF UNDER CAUSE NUMBER 115812, AND IS SHOWN HEREON.

NOTES

NOT CURRENT, NEED TITLE REPORT

1. ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM TITLE RESOURCES GUARANTY COMPANY RECORDED UNDER ORDER NO. _____ IN PREPARING THIS MAP, CORE DESIGN, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS CORE DESIGN, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY THE REFERENCED TITLE RESOURCE GUARANTY COMPANY. CORE DESIGN, INC. HAS RELIED WHOLLY ON TITLE RESOURCES GUARANTY COMPANY'S REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND THEREFORE CORE DESIGN, INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
2. THIS SURVEY REPRESENTS VISIBLE PHYSICAL IMPROVEMENT CONDITIONS EXISTING ON JUNE 29, 2019 ALL SURVEY CONTROL INDICATED AS "FOUND" WAS RECOVERED FOR THIS PROJECT IN SEPTEMBER, 2015.
3. PROPERTY AREA = 57,928± SQUARE FEET 1.3298± ACRES).
4. ALL DISTANCES ARE IN FEET.
5. THIS IS A FIELD TRAVERSE SURVEY. A SOKKIA FIVE SECOND COMBINED ELECTRONIC TOTAL STATION WAS USED TO MEASURE THE ANGULAR AND DISTANCE RELATIONSHIPS BETWEEN THE CONTROLLING MONUMENTATION AS SHOWN. CLOSURE RATIOS OF THE TRAVERSE MET OR EXCEEDED THOSE SPECIFIED IN WAC 332-130-090. ALL MEASURING INSTRUMENTS AND EQUIPMENT ARE MAINTAINED IN ADJUSTMENT ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
6. UTILITIES OTHER THAN THOSE SHOWN MAY EXIST ON THIS SITE. ONLY THOSE UTILITIES WITH EVIDENCE OF THEIR INSTALLATION VISIBLE AT GROUND SURFACE ARE SHOWN HEREON. UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. UNDERGROUND CONNECTIONS ARE SHOWN AS STRAIGHT LINES BETWEEN SURFACE UTILITY LOCATIONS BUT MAY CONTAIN BENDS OR CURVES NOT SHOWN. SOME UNDERGROUND LOCATIONS SHOWN HEREON MAY HAVE BEEN TAKEN FROM PUBLIC RECORDS. CORE DESIGN ASSUMES NO LIABILITY FOR THE ACCURACY OF PUBLIC RECORDS.

NO.	REVISIONS	DATE
1	ADDED DRAINAGE CONDEMNATION TO MAP	11/03/2015
2	TOPO UPDATE/NEW GRADING	01/16/2020

CORE DESIGN
ENGINEERING • PLANNING • SURVEYING
14711 NE 29th Place, #101
Bellevue, Washington 98007
425.885.7877 Fax 425.885.7963

BOUNDARY AND TOPOGRAPHIC SURVEY
MILANO ISSAQUAH APARTMENTS LLC
HOSSEIN KHORRAM
12224 NE 8TH STREET
BELLEVUE, WA 98005

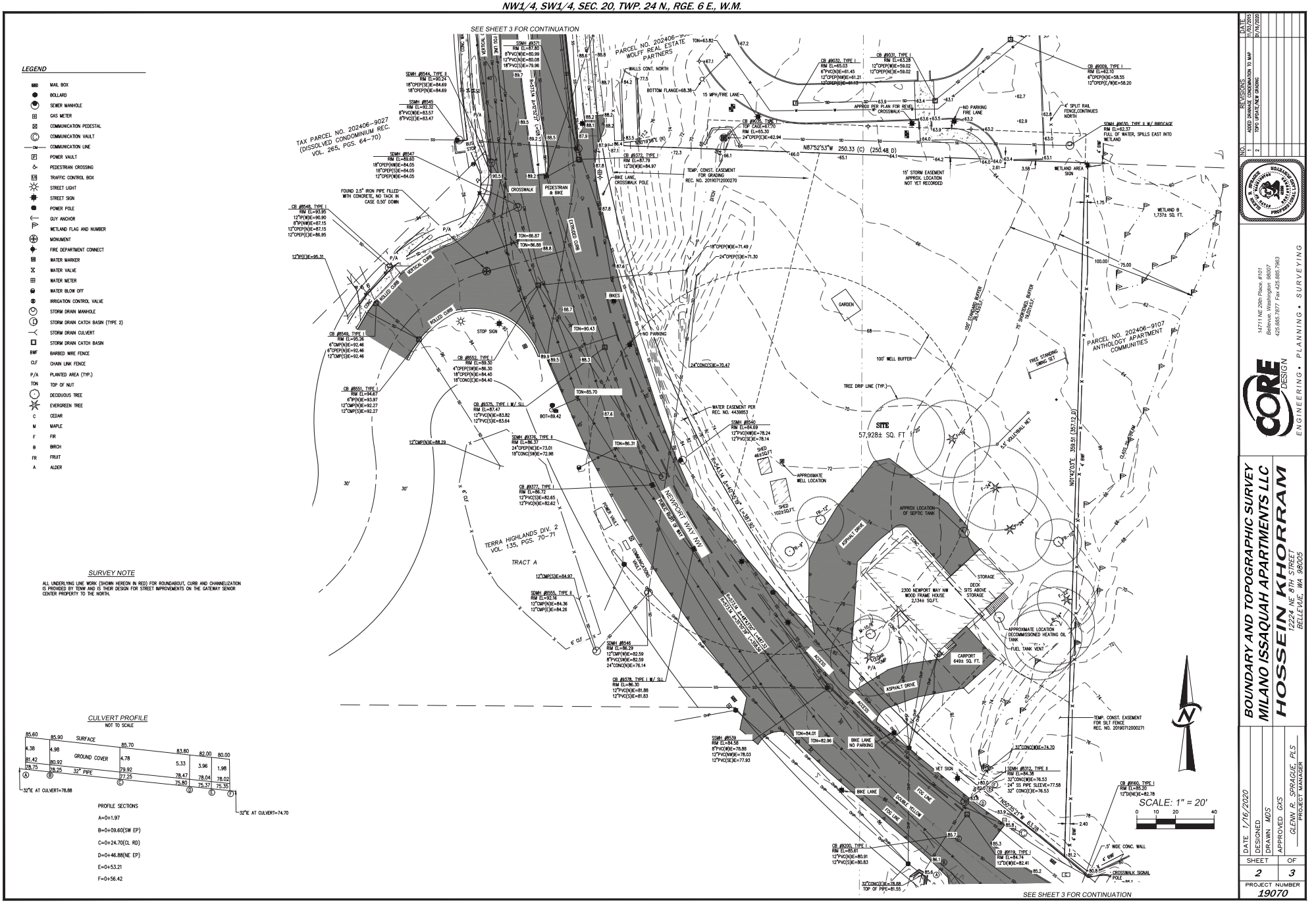
DATE 01/16/20
DESIGNED
DRAWN MDS
APPROVED GKS

GLENN R. SPRAGUE, PLS
PROJECT MANAGER

SHEET 1 OF 3

PROJECT NUMBER 19070

NW1/4, SW1/4, SEC. 20, TWP. 24 N., RGE. 6 E., W.M.



NO.	REVISIONS	DATE
1	ADDED DRAINAGE CONDENSATION TO MAP	11/03/2015
2	TOPO UPDATE/NEW GRADING	01/16/2020

R. SPRAGUE EXPIRES 10/13/2020 REGISTERED PROFESSIONAL ENGINEER STATE OF WASHINGTON 22156

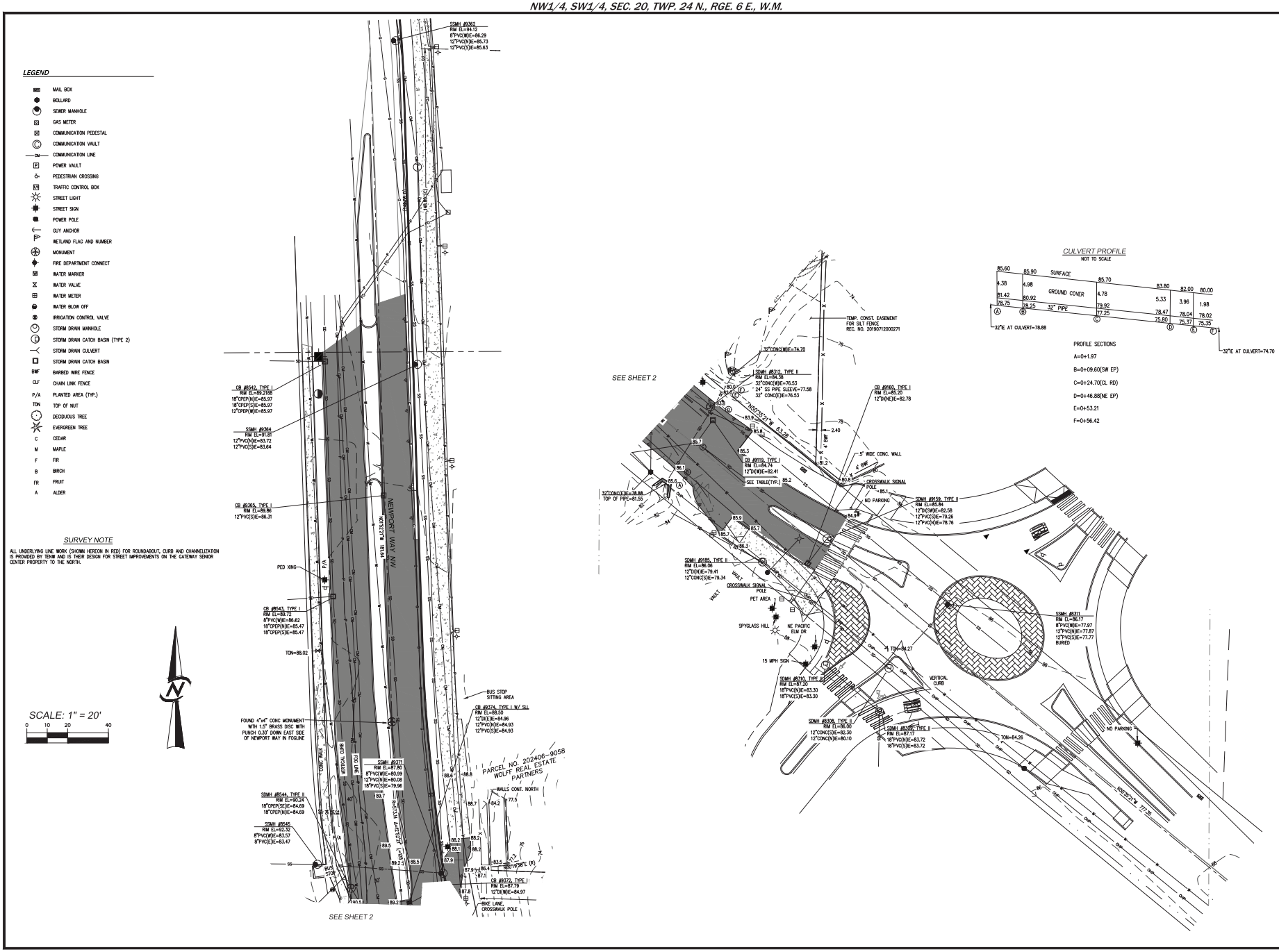
CORE DESIGN
ENGINEERING • PLANNING • SURVEYING
14711 NE 29th Place, #101
Bellevue, Washington 98007
425.885.7877 Fax 425.885.7963

BOUNDARY AND TOPOGRAPHIC SURVEY
MILANO ISSAQUAH APARTMENTS LLC
HOSSEIN KHORRAM
12224 NE 8TH STREET
BELLEVUE, WA 98005

DATE 1/16/2020
DESIGNED
DRAWN MDS
APPROVED GKS
GLENN R. SPRAGUE, PLS
PROJECT MANAGER

SHEET 2 OF 3
PROJECT NUMBER 19070

NW1/4, SW1/4, SEC. 20, TWP. 24 N., RGE. 6 E., W.M.



NO.	REVISIONS	DATE
1	ADDED DRAINAGE CONDENSATION TO MAP	11/03/2015
2	TOPO UPDATE/NEW GRADING	01/16/2020

R. SPRAGUE EXPIRES 10/12/2020 PROFESSIONAL LAND SURVEYOR

CORE DESIGN
ENGINEERING • PLANNING • SURVEYING
14711 NE 29th Place, #101
Bellevue, Washington 98007
425.885.7877 Fax 425.885.7963

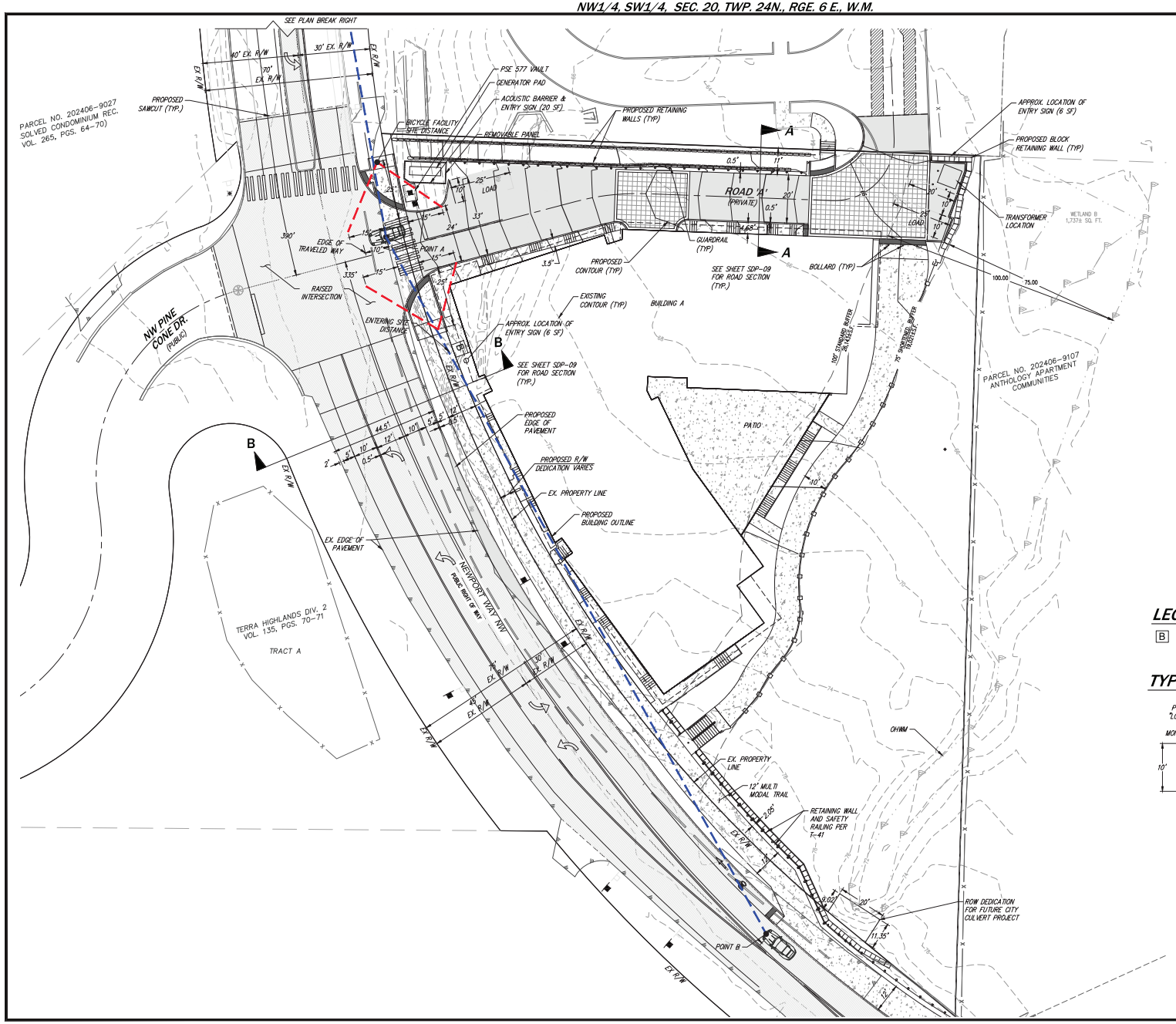
BOUNDARY AND TOPOGRAPHIC SURVEY
MILANO ISSAQUAH APARTMENTS LLC
HOSSEIN KHORRAM
12224 NE 8TH STREET
BELLEVUE, WA 98005

DATE 1/16/2020
DESIGNED
DRAWN MDS
APPROVED GKS
GLENN R. SPRAGUE, PLS
PROJECT MANAGER

SHEET	OF
3	3

PROJECT NUMBER
19070

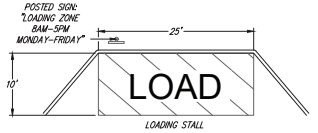
NW1/4, SW1/4, SEC. 20, TWP. 24N., RGE. 6 E., W.M.



LEGEND

B BICYCLE PARKING

TYPICAL PARKING CONFIGURATION



ONLY SHEETS WITH AUTHORIZING SIGNATURES HAVE BEEN APPROVED FOR CONSTRUCTION

SWXX-XXXXX

NO.	REVISION	DATE
1	REVISIONS PER CITY COMMENTS	6.24.21

6-24-21

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
SURVEYING

CORE DESIGN

12100 NE 195th St, Suite 300 Bothell, Washington 98011 425.885.7877

SITE PLAN
MILANO ISSAQUAH APARTMENTS

HOSSEIN KHORRAM
1224 NE 8TH ST
BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	GARRETT BENSON
DRAWN	GB / ARC
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

SHEET
SDP-05

PROJECT NUMBER
19070

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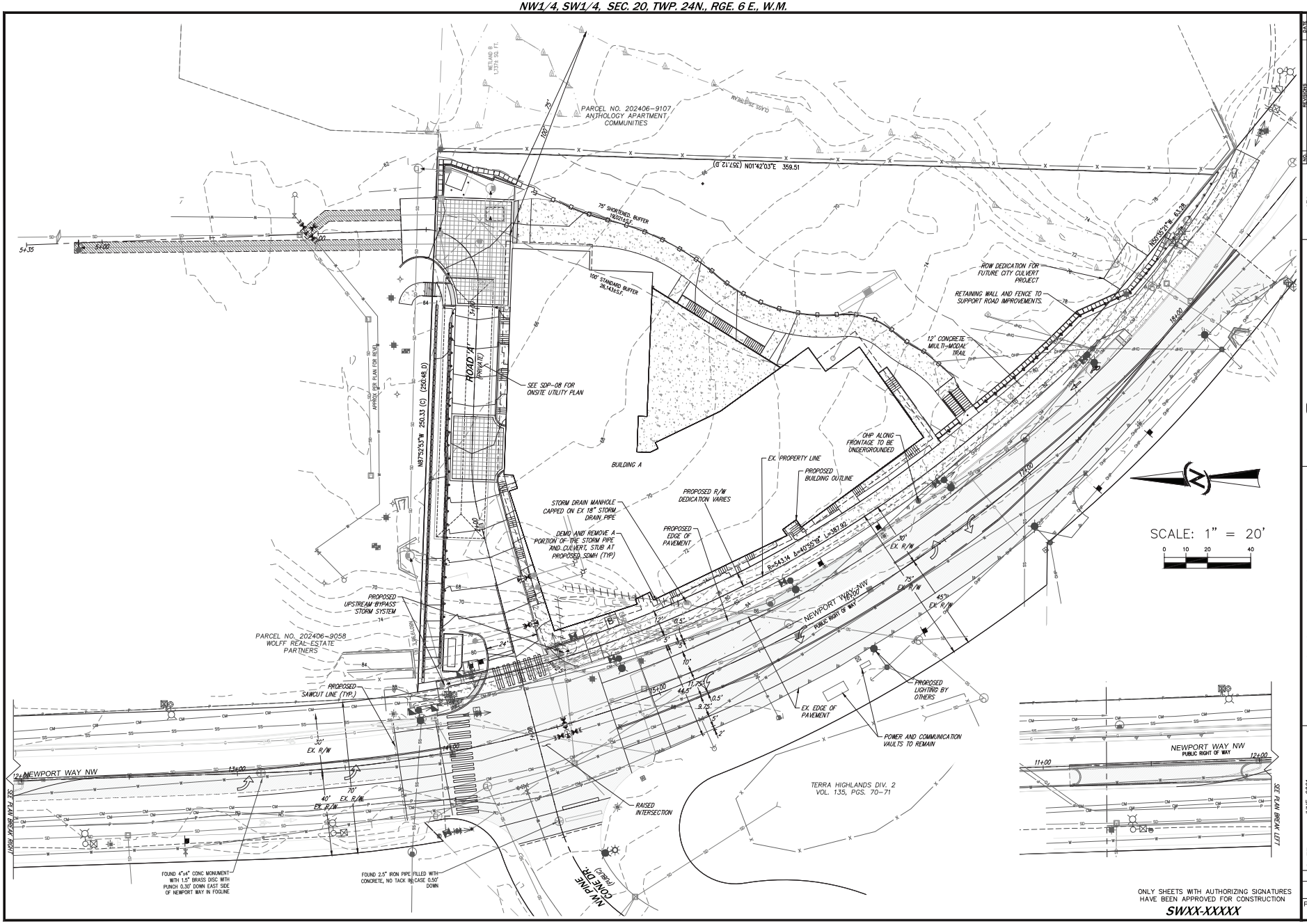
NW1/4, SW1/4, SEC. 20, TWP. 24N., RGE. 6 E., W.M.



ONLY SHEETS WITH AUTHORIZING SIGNATURES HAVE BEEN APPROVED FOR CONSTRUCTION

SWXX-XXXXX

NO.	REVISIONS	DATE
1	REVISIONS PER CITY COMMENTS	6/24/21

6-24-21

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
SURVEYING

CORE DESIGN

12100 NE 195th St, Suite 300, Bothell, Washington 98011 425.885.7877

OFFSITE IMPROVEMENTS
MILANO ISSAQUAH APARTMENTS

HOSSEIN KHORRAM
12224 NE 8TH ST
BELLEVUE, WA 98005

DATE JUNE, 2021
DESIGNED GARRETT BENSON
DRAWN GB / JRC
APPROVED GARRETT BENSON

GLENN R. SPRAGUE, P.L.S.
PROJECT MANAGER

SHEET
SDP-06
PROJECT NUMBER
19070

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ONLY SHEETS WITH AUTHORIZING SIGNATURES HAVE BEEN APPROVED FOR CONSTRUCTION

SWXX-XXXXX

NO.	REVISIONS	DATE
1	REVISIONS PER CITY COMMENTS	6.24.21

6-24-21

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
SURVEYING

CORE DESIGN

12100 NE 195th St, Suite 300, Bothell, Washington 98011 425.885.7877

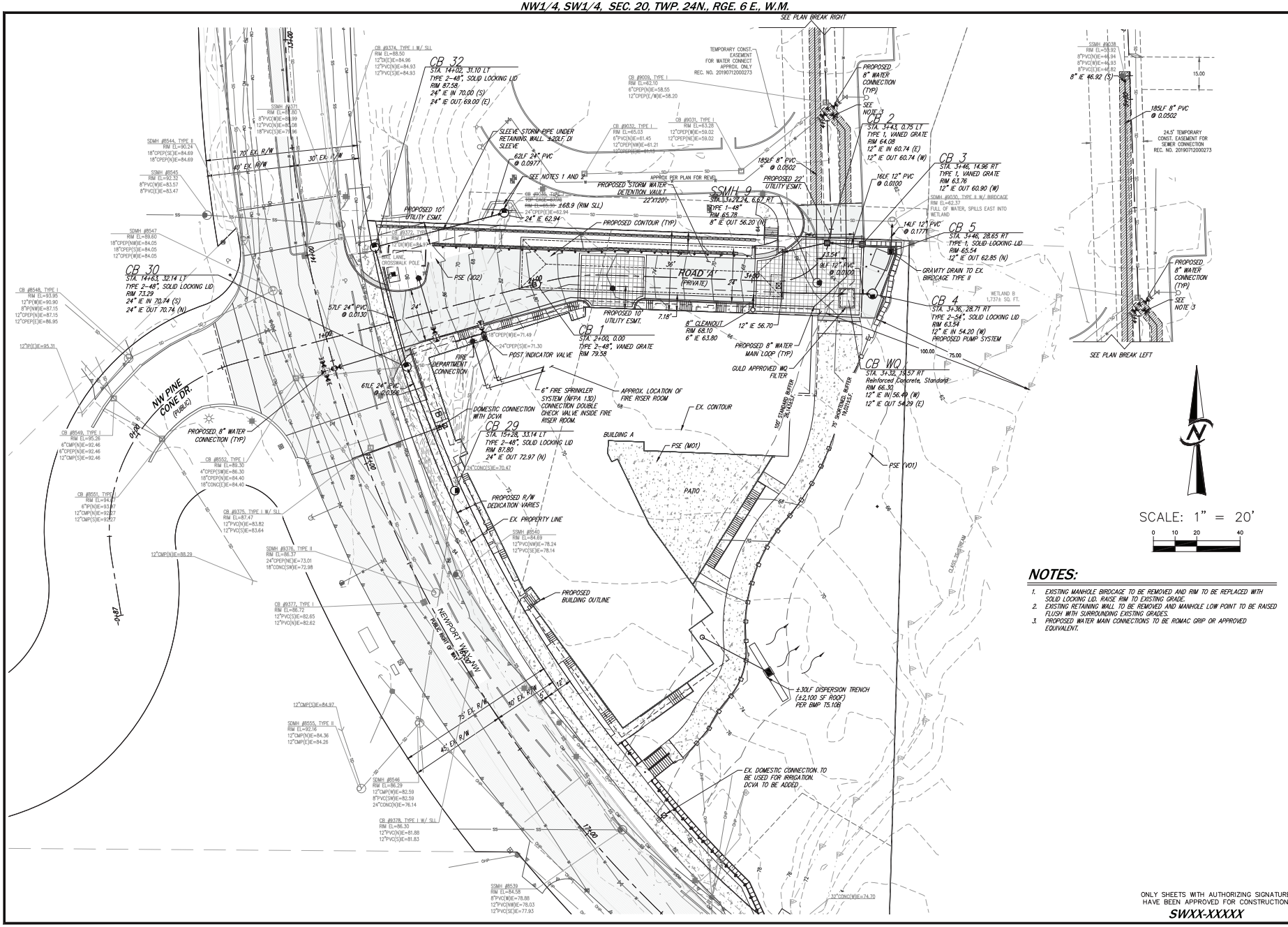
GRADING PLAN
MILANO ISSAQUAH APARTMENTS
HOSSEIN KHORRAM
12224 NE 8TH ST
BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	GARRETT BENSON
DRAWN	GB / JRC
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

SHEET
SDP-07
PROJECT NUMBER
19070

6/24/2021 8:24 AM | 2019 | 19070 | ENGINEERING | PRELIMINARY | SHEETS | SDP-07.DWG

NW1/4, SW1/4, SEC. 20, TWP. 24N., RGE. 6 E., W.M.



NOTES:

1. EXISTING MANHOLE BIRDCAGE TO BE REMOVED AND RIM TO BE REPLACED WITH SOLID LOCKING LID. RAISE RIM TO EXISTING GRADE.
2. EXISTING RETAINING WALL TO BE REMOVED AND MANHOLE LOW POINT TO BE RAISED FLUSH WITH SURROUNDING EXISTING GRADES.
3. PROPOSED WATER MAIN CONNECTIONS TO BE ROMAC GRIP OR APPROVED EQUIVALENT.

ONLY SHEETS WITH AUTHORIZING SIGNATURES HAVE BEEN APPROVED FOR CONSTRUCTION

SWXX-XXXXX

NO.	REVISIONS	DATE
1	REVISIONS PER CITY COMMENTS	6/24/21

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
SURVEYING

CORE DESIGN
12100 NE 195th St, Suite 300, Bothell, Washington 98011 425.885.7877

ONSITE UTILITY PLAN
MILANO ISSAQUAH APARTMENTS

HOSSEIN KHORRAM
12224 NE 81ST ST
BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	GARRETT BENSON
DRAWN	GB / JRC
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

SHEET
SDP-08
PROJECT NUMBER
19070

6-24-21

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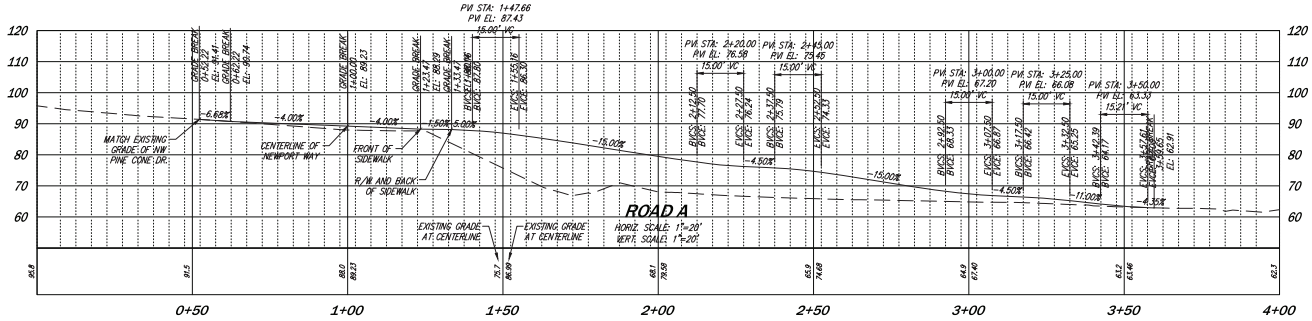
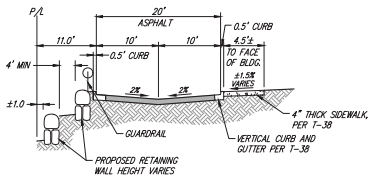
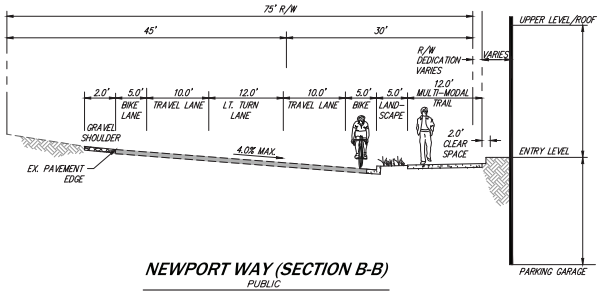




ROAD-A (SECTION A-A)
PRIVATE
NO SCALE



NEWPORT WAY (SECTION B-B)
PUBLIC
NO SCALE

ONLY SHEETS WITH AUTHORIZING SIGNATURES HAVE BEEN APPROVED FOR CONSTRUCTION
SWXX-XXXXX

NO.	REVISIONS	DATE
1	REVISIONS PER CITY COMMENTS	6/24/21

6-24-21

CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
SURVEYING

CORE DESIGN

12100 NE 195th St, Suite 300 Bothell, Washington 98011 425.885.7877

ONSITE PRFOFILE
MILANO ISSAQUAH APARTMENTS

HOSSEIN KHORRAM
1224 NE 8TH ST
BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	GARRETT BENSON
DRAWN	GB / ARC
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

SHEET
SDP-09
PROJECT NUMBER
19070

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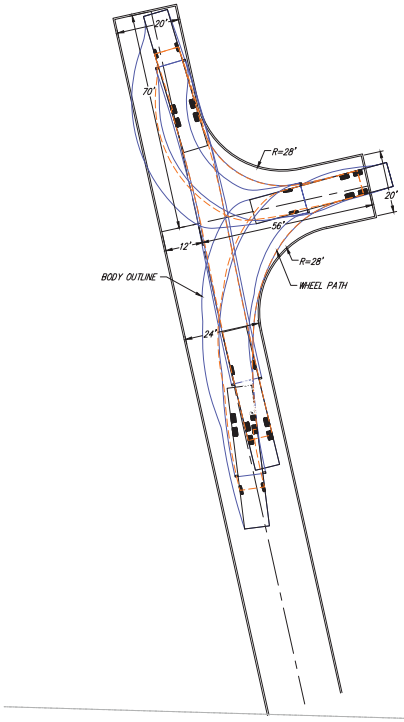

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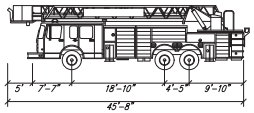

EASTSIDE FIRE RESCUE LADDER:

WIDTH:	9.75'
TRACK:	8.00'
LOCK-TO-LOCK TIME:	6.0
STEERING ANGLE:	34°

FIRE ACCESS ROUTE

HOSE DRAG - 150' MAXIMUM

NOTES:

1. TURN AROUND SHOWN IS NORTH OF THE PROJECT SITE LOCATED IN THE REVEL PROPERTY (ISSAQUAH GATEWAY SENIOR HOUSING). THE LINE WORK AND DIMENSIONS OF THE TURN AROUND SHOWN IS PER THE APPROVED SW16-00014 APPROVED PLANS. THE PROJECT IS REQUESTING TO USE THIS TURN AROUND FOR FIRE.

ONLY SHEETS WITH AUTHORIZING SIGNATURES HAVE BEEN APPROVED FOR CONSTRUCTION

SWXX-XXXXX

NO.	REVISIONS	DATE
1	REVISIONS PER CITY COMMENTS	6/24/21

6-24-21

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CORE DESIGN
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ACCESS DIAGRAM (OPTION 1)
MILANO ISSAQUAH APARTMENTS
HOSSEIN KHORRAM
12224 NE 8TH ST
BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	GARRETT BENSON
DRAWN	GB / JRC
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

SHEET
SDP-10
PROJECT NUMBER
19070

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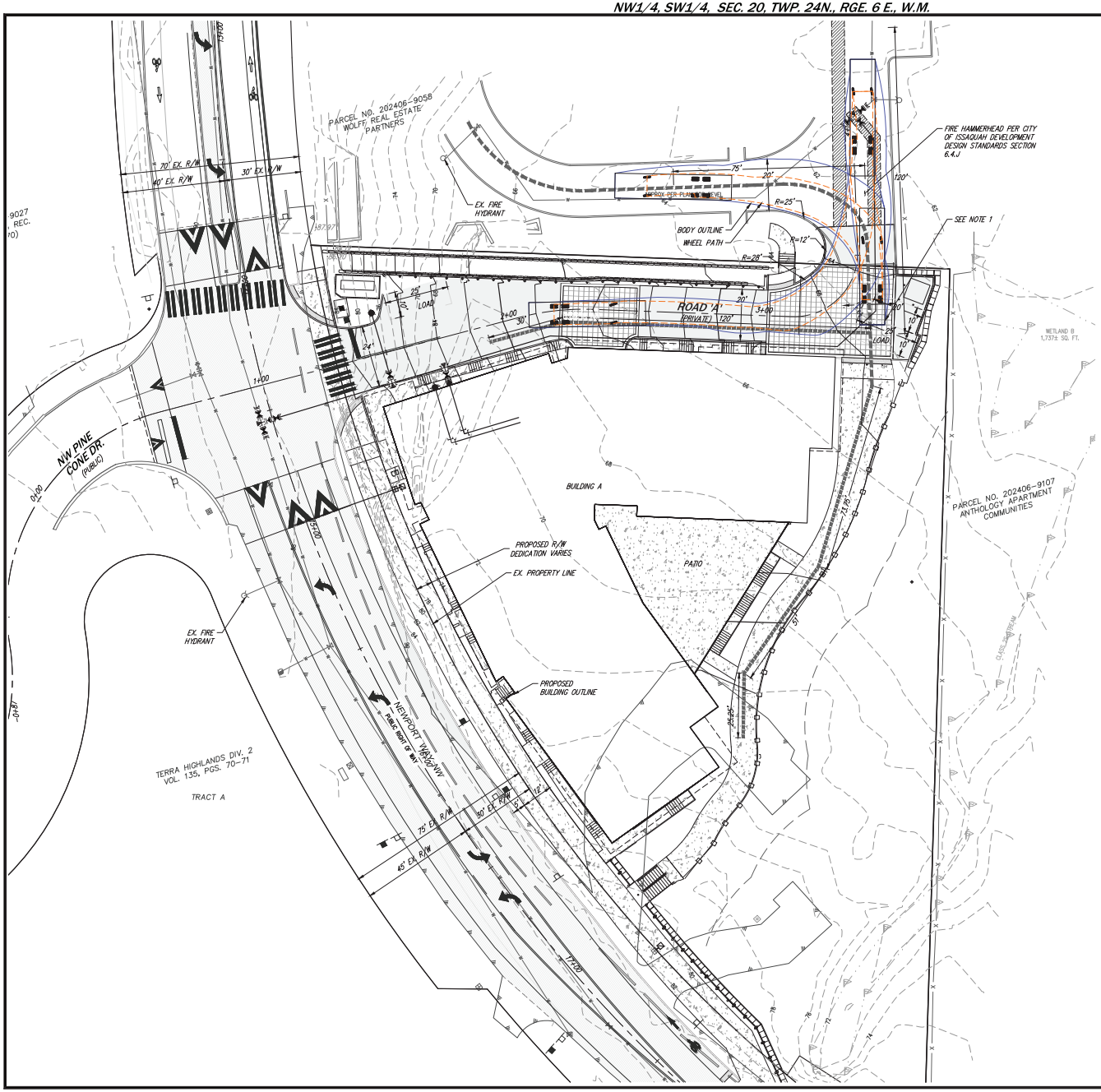
NW1/4, SW1/4, SEC. 20, TWP. 24N., RGE. 6 E., W.M.



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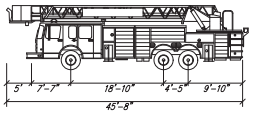

EASTSIDE FIRE RESCUE LADDER:

WIDTH:	9.75'
TRACK:	8.00'
LOCK-TO-LOCK TIME:	6.0
STEERING ANGLE:	34°

FIRE ACCESS ROUTE

HOSE DRAG - 150' MAXIMUM

NOTES

1. FIRE TRUCK TURING IMPACTS LOADING AND UNLOADING STALLS FOR THIS OPTION. THE PROJECT PROPOSES TO INCLUDE A SIGN FOR BOTH STALLS "DRIVER TO REMAIN IN VEHICLE AT ALL TIMES"

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SWXX-XXXXX

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ACCESS DIAGRAM (OPTION 2)
MILANO ISSAQUAH APARTMENTS

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BELLEVUE, WA 98005

DATE JUNE, 2021
DESIGNED GARRETT BENSON
DRAWN GB / JRC
APPROVED GARRETT BENSON

GLENN R. SPRAGUE, P.L.S.
PROJECT MANAGER

SHEET
SDP-11

PROJECT NUMBER
19070

6-24-21

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NW1/4, SW1/4, SEC. 20, TWP. 24N., RGE. 6 E., W.M.

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-11.000	-7.000	
2	-7.000	-3.000	
3	-3.000	1.000	
4	1.000	5.000	
5	5.000	9.000	
6	9.000	13.000	
7	13.000	17.000	
8	17.000	21.000	

NEGATIVE NUMBER REPRESENT DEPTH OF CUT. POSITIVE NUMBERS REPRESENT DEPTH OF FILL. DEPTHS ARE APPROXIMATED FROM EXISTING SURFACE TO FINISHED GRADE SURFACE, DERIVED UTILIZING INDUSTRY GRADE SOFTWARE.

GRADING QUANTITIES

CUT	=	2,530 CY
FILL	=	4,277 CY
IMPORT	=	1,746 CY

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SWXX-XXXXX

NO.	REVISIONS	DATE
1	REVISIONS PER CITY COMMENTS	6.24.21

6-24-21

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CUT/FILL ESTIMATES
MILANO ISSAQUAH APARTMENTS

HOSSEIN KHORRAM
12224 NE 8TH ST
BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	GARRETT BENSON
DRAWN	GB / JRC
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

SHEET
SDP-12
PROJECT NUMBER
19070

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PRELIMINARY

TECHNICAL INFORMATION REPORT

FOR

MILANO APARTMENTS

CITY OF ISSAQUAH IN KING COUNTY, WASHINGTON

6/24/2021

Project Manager:	**Glenn R. Spraque**
Prepared by:	**Garrett C. Benson**
Date:	**September 2020**
Revised:	**June 2021**
Core No.:	**19070**

CORE DESIGN
14711 NE 29Th Place, Suite 101
Bellevue, Washington 98007
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www.coredesigninc.com

Table of Contents

SECTION 1: PROJECT OVERVIEW

The Milano Apartments project site consists of one parcel with a total area of 1.34 acres, located northeast of Newport Way NW and west of 200th Ave SE in the City of Issaquah. The site is bordered by a multi-family development to the north and east. The sites south and west boundary borders Newport Way NW. See Figure 1. 1 at the end of this section for a vicinity map. The King County tax parcel ID number for the parcel involved is included in Table 1. 1 below. (Refer to the King County parcel report included in Appendix A).

Table 1. 1 King County Parcel ID

KC Parcel #	Parcel Area (SF)
2024069057	58,491

The project site land cover consists of a single-family residence with associated structures and access drive. The remaining land cover is mostly composed of grass with a small portion of forested vegetation near the existing residence at the southeast corner. The parcel generally slopes from south west to north east at approximately 6 to 10 percent on average. However, the slope near the ROW line the property has an approximate 3:1 slope with varying widths. The project site contains a small creek named Schneider Creek that shortly cross the property at the south tip. The creek currently flows under Newport Way NW to the north east in an existing culvert and outlets onto the project site for approximately 50 feet before crossing the east property line. Runoff from the site can be characterized as sheet flow and concentrated flow. Accounting for the streams associated buffers and ROW dedication the developable project area is approximately 1.27 acres. The proposed development of the property will include the clearing and grading of the site for the construction of a 101-unit multi-family development with associated roadway, utilities, stormwater detention and water quality facilities. The project will require frontage improvements along with offsite roadway improvements to Newport Way NW. The existing road is paved with an extruded curb along the lane heading northwest, separating the road and sidewalk, with curb depression to allow the storm waters to sheet flow on site. Besides the culvert for Schneider Creek there are two existing 18” culverts that discharge onsite near the northwest corner of the site and flow offsite to the north in an existing swale.

The project will be designed using the guidelines and requirements established in the 2014 Washington State Department of Ecology’s Stormwater Management Manual (2014 DOE) and the 2017 City of Issaquah Addendum criteria. The project will be adding more than 5,000 square feet of new impervious area, so the project falls under Full Drainage Review and Conservation Flow Control (Level 2). Water quality is required since the project will add more than 5,000 sf of pollution generating impervious surface (PGIS). The project is a multifamily development which required enhanced basic water quality. In addition to the enhanced basic treatment the City of Issaquah has adopted the Issaquah Creek Final Basin Nonpoint Action Plan which requires all project to meet sensitive Lake Water Quality treatment. The drainage analysis for detention and

water quality sizing was modeled using the approved MGS Flood continuous simulation software. The water quality facility sizing calculations are based on methods described in Chapter V of the 2014 DOE manual. All conveyance systems have been designed to convey runoff without overtopping.

Figure 1. 1 Vicinity Map

SECTION 2: CONDITIONS AND REQUIREMENTS SUMMARY

The proposed onsite project is classified as a "New Development Project with < 35 percent of existing impervious area. The offsite improvements are classified as a "Transportation Redevelopment Project" per the City of Issaquah 2017 Addendum to the 2014 Stormwater Management Manual for Western Washington (2014 DOE). Therefore, both projects trigger all nine Minimum Requirements which will be addressed per Volume I, Chapter 2 of the 2014 DOE Manual.

2.1 Minimum Requirements

2.1.1 Minimum Requirement #1: Preparation of Stormwater Site Plans

A stormwater site plan has been prepared as a separate document to satisfy this requirement.

2.1.2 Minimum Requirement #2: Construction Stormwater Pollution Prevention (SWPP)

The proposed erosion and sedimentation control BMP's have been designed to meet the requirements and design standards in Volume II, Chapter 3 of the 2014 DOE Manual. A SWPPP has been submitted under a separate cover. See Section 8 of this report for the TESC plans and general description of the proposed BMPS.

2.1.3 Minimum Requirement #3: Source Control of Pollution

Based on Volume IV of the DOE manual the proposed project is not a commercial building or commercial site and does not require source control.

2.1.4 Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

This project will match the natural discharge location in the northeast. Outfall protection is proposed to reduce impacts within the sensitive area.

2.1.5 Minimum Requirements #5: On-site Stormwater Management

The proposed project triggers minimum requirements 1 through 9, and it is inside the Urban Growth Area (Chapter 36.70A RCW). Therefore, the Low Impact Development Performance Standard and BMP T5.13 or List #2 will be required for On-site Stormwater Management per Volume I of the Doe Manual Section I-2.5.5. The project has chosen to apply list #2. See Section 4.4 of this report for further discussion.

2.1.6 Minimum Requirement #6: Runoff Treatment

The project is required to meet both phosphorus and enhanced treatment water quality standards per the City of Issaquah 2017 Storm manual section 2.4.6.2. See section 4 of this report for further discussion.

2.1.7 Minimum Requirement #7: Flow Control

The project proposes more than 10,000 square feet of impervious surface. Therefore, the project requires flow control. This requires that the developed condition discharge durations match the pre-developed condition durations from 50% of the 2-year peak flow up to the full 50-year peak flow and that the developed 2-year and 10-year peak discharge rates do not

exceed the existing 2-year and 10-year peak discharge rates, respectively. Refer to section 4.5 of this report for a discussion and calculations.

2.1.9 Minimum Requirement #9: Operations and Maintenance

See Section 10 of this report for an operation and maintenance manual.

2.2 Optional Guidance

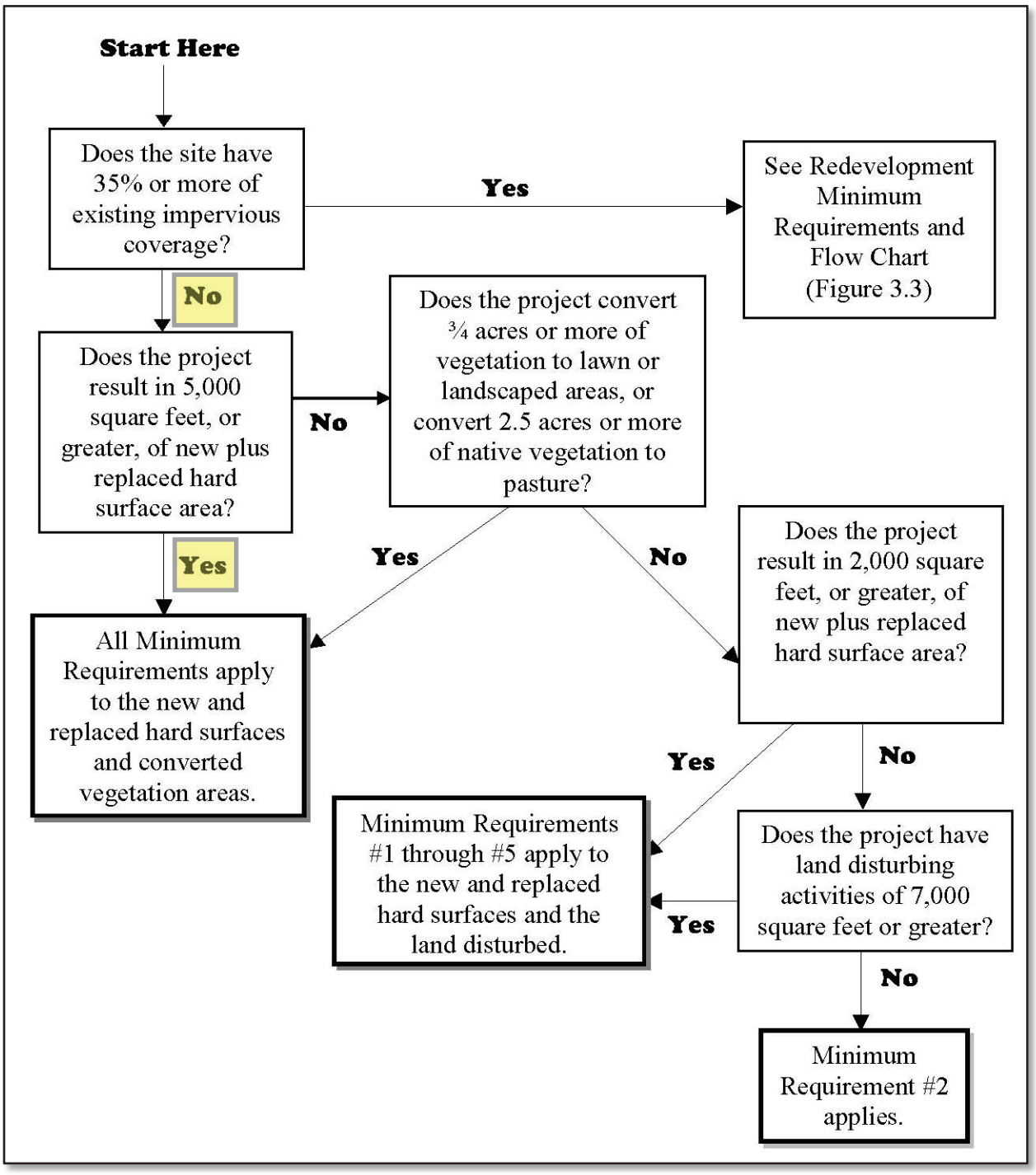
2.2.1 Optional Guidance #1: Financial Liability

A bond quantities worksheet is provided in Section 9 of this Report.

2.2.2 S Optional Guidance #2: Off Site Analysis and Mitigation

The offsite analysis is addressed in Section 3 of this report.

Figure 2.3. Flow Chart for Determining Requirements for New Development



SECTION 3: OFFSITE ANALYSIS

TASK 1 Study Area Definition and Maps

The proposed project contains parcel number 2024069057.

TASK 2 Resource Review

Basin Reconnaissance Summary Reports

No Basin Reconnaissance Summary Reports appear to be available for the area that is within a quarter mile of this project site.

Critical Aquifer Recharge Areas

The project is not located within a critical aquifer recharge area (CARA) per the City of Issaquah map. See Appendix B for a copy of the map and project location.

FEMA Maps

A FEMA map dated May 16, 1995 number 53033C0687 F was reviewed. The developable site is not located within a floodplain as it is covered by "Zone X – Outside of 500-year floodplain". The FEMA Map is included in Appendix B.

Downstream Drainage Complaints

Drainage complaints were researched within the study area. King County does not show any complaints located within a one-mile radius downstream of the project site. There are no current documented downstream problems associated with this project site The list of the 3 closed drainage complaints within a mile of the project are listed below. See Drainage Complaint Exhibit for the numbering and location reference in at the end of this section. The project proposes to detain and treat all runoff in order to match the historical forested condition.

1. Problem Type: DRNG
   Complaint Type: (C) The complaint was closed in 1989. The comment lists flooding by Cougar Mountain acad

2. Problem Type: DRNG
   Complaint Type: (C) Drain from tennis court closed in 1991.

3. Problem Type: WQAI (water quality audit inspection)
   Complaint Type: (WQA) No comment provided date closed 2012.

TASK 3 Field Investigation

A field investigation was completed on January 30th, 2020. The weather was overcast and temperature around 50 degrees.

Tributary Area

The existing grade in the western/southern portions of the site descends from the southwest to the northeast with gradients of approximately 6 to 10 percent. Along the western property line, the site slopes at approximately a 3:1 grade up to the ROW with varying widths. At the south corner of the site Schneider Creek crosses the property on its way north to Lake Sammamish. The creek currently flows under Newport Way NW to the north east in an existing culvert and outlets onto the project site for approximately 50 feet before crossing the east property line.

Upstream Tributary Analysis

The project site receives upstream flow via two 18" culverts that discharge onto the property near the north west corner. The discharged runoff flows to the north through a manmade swale to a piped conveyance system on the neighboring northern parcel. The stormwater is then routed parallel with the north property line until is discharges from a bubble up bird cage manhole towards Schneider Creek. The project site also receives a small portion of sheet flow runoff from the Newport Way NE. Schneider Creek is conveyed under Newport Way NW via a 32" culvert and outfalls just north of Newport Way NW onto the property at the south corner.

Level 2 Downstream Analysis.

Field Investigation

The site currently sheet flows stormwater runoff to the northeast into Schneider Creek. As discussed above Schneider Creek enters the property at the south corner from the culvert under Newport way NW. The creek is then within an open channel with surrounding low vegetation that runs through the property for approximately 75 feet heading northeast before exiting the eastern property line. At this point the creek turns to the north into a heavier forested riparian area. After approximately 475 feet the creek channel flows under the newly constructed bridge crossing between the Revel and Gateway project. Once on the north side of the bridge the stream enters the newly restored channel with wooded debris. The creek flow is conveyed north further for approximately 545 feet before being routed under I-90 in a piped conveyance system for approximately 345 feet. The piped system outfalls into a creek channel once on the north side of I-90 where the flow continues north and ultimately outfalls into Lake Sammamish.

TASK 4 Drainage System Description and Problem Description

See the Off-site Analysis System Table in Appendix B.

TASK 5 Mitigation of Existing and Potential Problems

Downstream Drainage Problems Requiring Special Attention

Type 1 – Conveyance System Nuisance Problems

There are no known, reported or observed conveyance nuisance problems downstream.

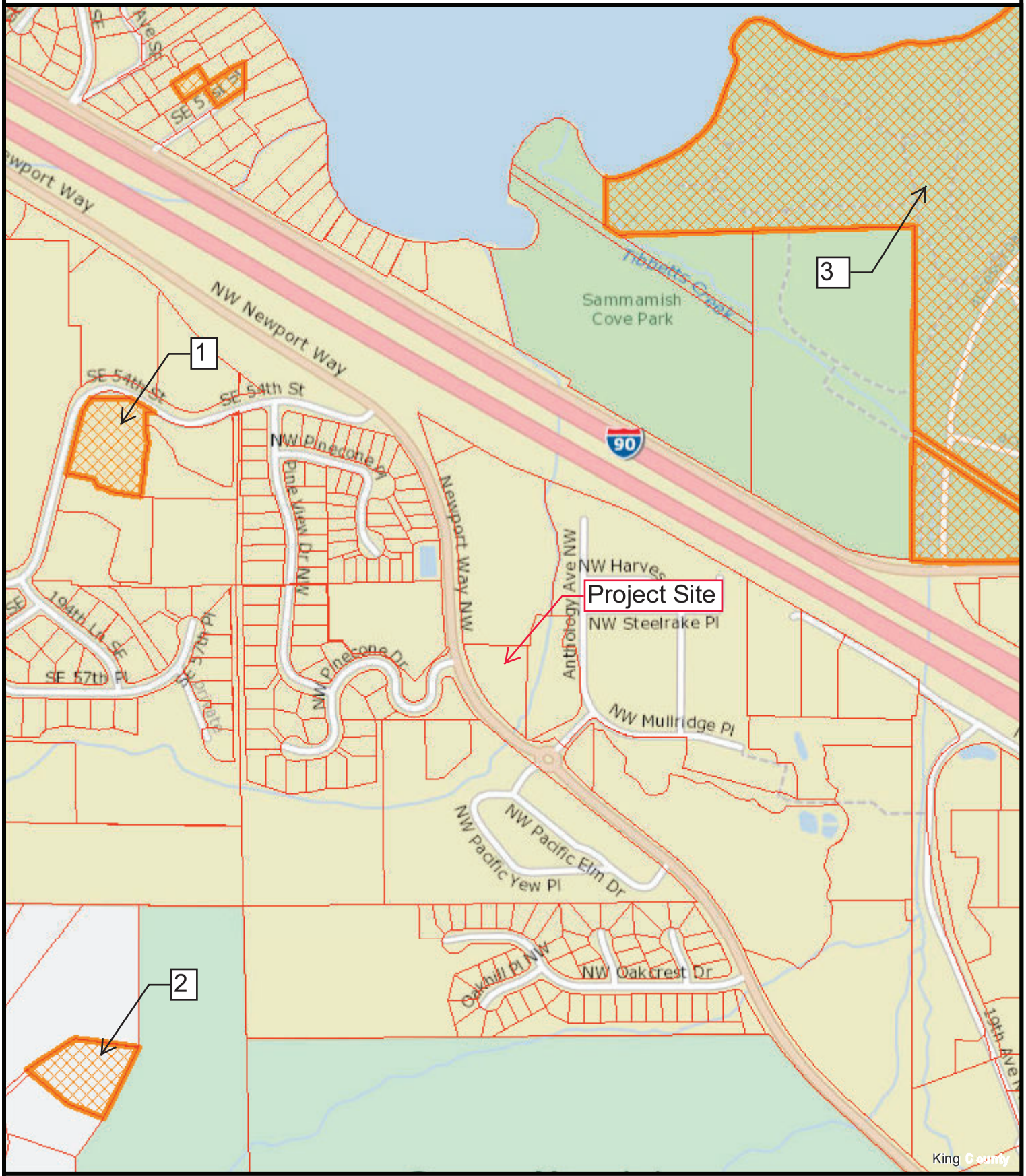
Type 2 – Severe Erosion Problems

There are no known, reported or observed current downstream severe erosion problems

Type 3-Severe Flooding Problems

There are no known, reported or observed current downstream severe flooding problems.

Drainage Complaints



Date: 9/17/2020 Notes:

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King County

SECTION 4: FLOW CONTROL AND WATER QUALITY DESIGN

4.1 Performance Standards

All stormwater facilities will be designed in accordance with the 2014 Stormwater Management Manual for Western Washington (2014 SWMMWW) with the 2017 City of Issaquah Surface Water Design Manual Addendum. The project consists of ROW frontage improvements in Newport Way NW and the onsite development. As discussed in Section 3 of this report both the ROW improvements and onsite work are within the same drainage basin. The project proposes to keep the public and private stormwater separate while maintaining the existing drainage basin. The performance standards for both the ROW Improvements and onsite development are discussed below.

Flow Control: (SWMMWW section I-2.5.7)
The Flow Control Standard requires maintaining the durations of high flows at their pre-development levels for all flows greater than one-half of the 2-year peak flow through the 50-year peak flow.

Onsite Flow Control
A single detention vault is proposed for all target surfaces on site to meet the flow control standard. The impervious areas include the new proposed roadway, patios, sidewalk and roof. An area summary table of impervious and pervious areas, along with corresponding MGS Flood hydrologic analysis results are included in the following pages. See Appendix C for the full MGS Flood.

Offsite Flow Control
The project proposes to apply the performance standards to the difference in impervious areas between the existing and proposed conditions. The net area will be referred to as the Target area. Refer to the existing condition exhibit at the end of this section and the area summary table of the target areas. The target areas are proposed to bypass the onsite private detention system and be routed into the public storm system. The onsite vault will over detain the onsite flows to meet the flow control standard for the entire basin.

Water Quality: Phosphorus and Enhanced Treatment Water Quality
The phosphorus and enhanced treatment Water Quality Menus include the following pollutant removal targets:

- Enhanced: Total Suspended Solids (TSS) Removal= 80%
- Enhanced: Total Removal = > 60% Zinc and > 30 % Copper
- Sensitive Lake: Total Phosphorus Removal = 50%

The project proposes to use GULD approved treatment facilities by the Department of Ecology's Tape program for the onsite basin. These treatment facilities will provide all the required pollutant removal targets. Refer to section 4.5 of this report for the water quality calculations, discussion, and proposed facility manufacture details. The offsite basin will provide a separate water quality GULD approved facility than onsite.

4.2 Design Parameters

Hydrologic Modeling

The project proposes to use an approved continuous simulation modeling program MGS Flood to model the project and flow control facilities.

4.3 Basin Modeling

4.3.1 Existing Conditions

Existing Onsite Basin

The total disturbed onsite project area is 1.27 acres and the existing parcel is currently developed with a single family residence. The developable area of the onsite project consists of one basin. See the existing conditions exhibit at the end of this section. The following table shows the areas used to develop the pre-developed peak flows. Historic site conditions are assumed for all existing onsite areas per Section I-2.5.7 of the 2014 SWMMWW and are modeled as Till Forest.

ONSITE BASIN	Total Area = 1.27 acres
GROUND COVER	AREA (acres)
Till Forest	1.27

Existing Offsite Basin

The offsite project area consists of approximately 0.67 acres of Right-of-Way (ROW) along Newport Way NW and a portion of the connection to the Revel project to the north. Since the majority of this basin is existing impervious (0.57 acres) only the target area (0.10 acres) as discussed above will be modeled in the historic condition. The following table shows the breakdown of these areas.

OFFSITE BASIN (BYPASS)	Total Area = 0.10 acres
GROUND COVER	AREA (acres)
Till Forest	0.10

EX. OFFSITE BASIN	Total Area = 0.57 acres
GROUND COVER	AREA (acres)
Replaced Impervious	0.03
Grind and Overlay	0.54

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NO.	REVISIONS	DATE

EXISTING CONDITIONS EXHIBIT
MILANO ISSAQUAH APARTMENTS

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BELLEVUE, WA 98005

DATE	JUNE, 2021
DESIGNED	
DRAWN	
APPROVED	GARRETT BENSON
	GLENN R. SPRAGUE, P.L.S.
	PROJECT MANAGER

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PROJECT NUMBER
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4.3.2 Developed Conditions

Developed Onsite Basin

The developed site will consist of 101 apartment units with associated roadway and utility improvements and parking. A Developed Conditions Exhibit is included at the end of this section. The following table shows a breakdown of the proposed developed areas.

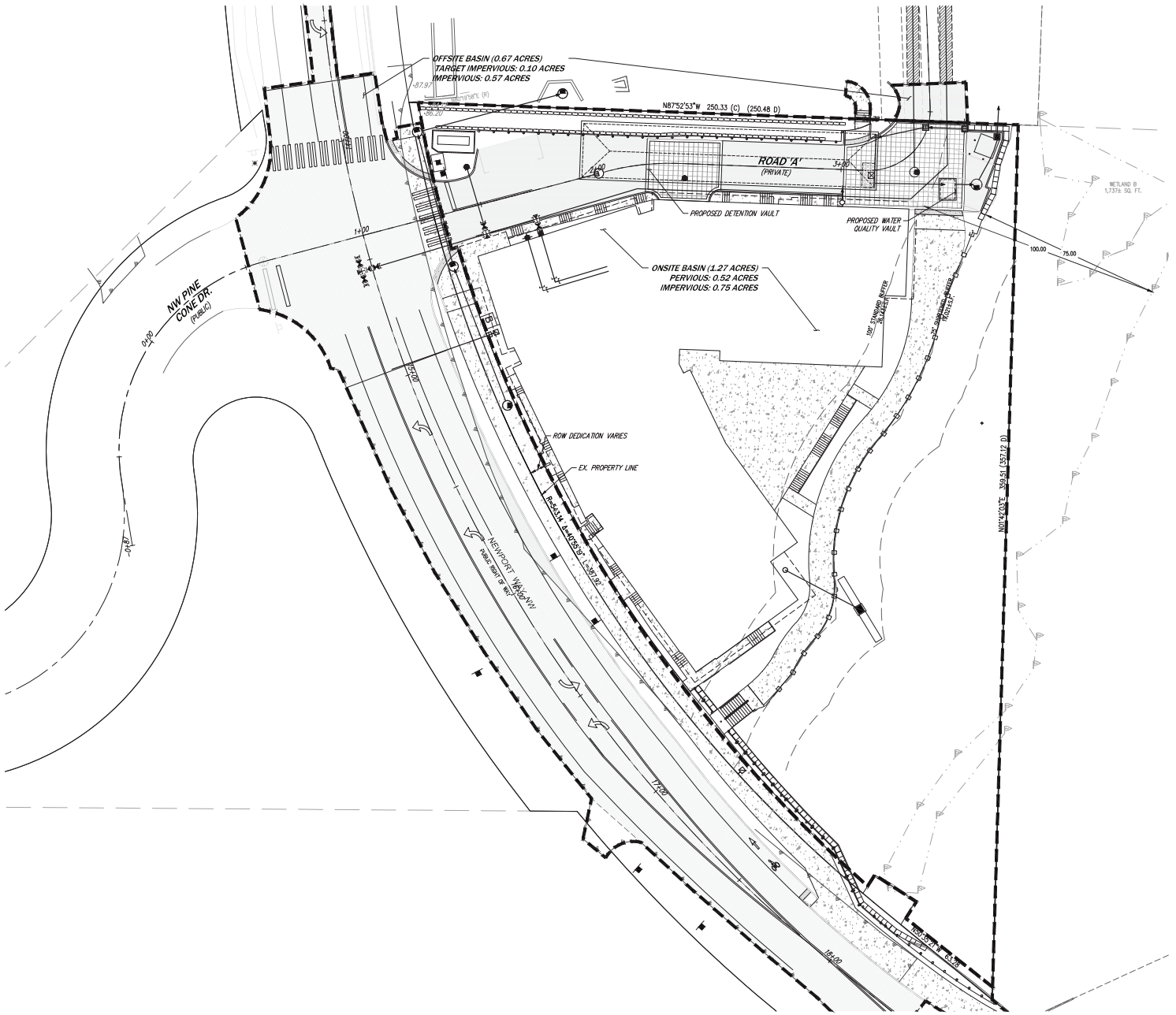
ONSITE BASIN	Total Area = 1.27 acres
GROUND COVER	AREA (acres)
Till Forest (undisturbed)	0.40
Till Grass	0.12
Impervious	0.75

Developed Offsite Basin

The developed offsite basin will consist of approximately 0.67 acres of frontage and roadway improvements along Newport Way NW. Refer to the developed conditions exhibit included at the end of this section. The frontage improvements include a 12 foot multi-modal trail with a 5 foot planter buffer. A raised intersection is proposed at the entrance to the project at the existing intersection to pinecone drive. The road section will include a turn lane, two drive lanes and a 5 foot bike lane. The majority of ROW improvements will consist of grind and overlaying the existing pavement in Newport way NW. The project proposes to apply the performance standards to the difference in impervious areas between the existing and proposed conditions (Target area).

OFFSITE BASIN (BYPASS)	Total Area = 0.10 acres
GROUND COVER	AREA (acres)
Impervious	0.10

NW1/4, SW1/4, SEC. 20, TWP. 24N., RGE. 6 E., W.M.



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NO.	REVISIONS	DATE

DEVELOPED CONDITIONS EXHIBIT
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DATE JUNE, 2021
DESIGNED
DRAWN
APPROVED GARRETT BENSON
GLENN R. SPRAGUE, P.L.S.
PROJECT MANAGER

SHEET
1

PROJECT NUMBER
19070

4.4 BMP Requirements

Flow control BMP's are proposed for the project per minimum requirement #5. The project triggers minimum requirements 1-9 and per Table I-2.5.1 either the Low Impact Development Performance standard with BMP T5.13 can be met or List #2. The following responses to the BMP's for the list #2 approach are provided below.

Lawn and landscaped areas:

1.) Post-Construction Soil Quality and Depth in accordance with BMP T5.13 in Chapter 5 of Volume V of the SWMMWW.
Response: *BMP T5.13 will be implemented in all pervious disturbed areas.*

Roofs:

1.) Full Dispersion in accordance with BMP T5.30 in Chapter 5 of Volume V of the SWMMWW, or Downspout Full Infiltration Systems in accordance with BMP T5.10A in Section 3.1.1 of Volume III of the SWMMWW.
Response*: Full Dispersion is not possible since the developed site does not allow for 65 percent of the area to be preserved in the forested native condition.*

2.) Bioretention (See Chapter 7 of Volume V of the SWMMWW) facilities that have a minimum horizontally projected surface area below the overflow which is at least 5% of the total surface area draining to it.
Response*: Bioretention facilities are not proposed for the project. Per the geotechnical engineer site has does not support infiltration.*

3.) Downspout Dispersion Systems in accordance with BMP T5.10B in Section 3.1.2 of Volume III of the SWMMWW.
Response*: A 30LF downspout dispersion trench notched grade board per Figure II-3.1.6 is proposed for a maximum of 2,100 square feet (10 LF of trench per 700 sf of contributing surface). The vegetative flow path consists of less than 15% slopes and a minimum dispersion path of 50 LF will be provided. Per section III-3.1.2 the proposed dispersion trench meets the criteria in order model the contributing impervious surface as grassed.*

4.) Perforated Stub-out Connections in accordance with BMP T5.10C in Section 3.1.3 of Volume III of the SWMMWW.
Response*: Perforated Stub-out Connections are not proposed for the project due to the geotechnical recommendations.*

Other Hard Surfaces:

1.) Full Dispersion in accordance with BMP T5.30 in Chapter 5 of Volume V of the SWMMWW.
Response*: Full Dispersion is not possible since the developed site does not allow for 65 percent of the area to be preserved as the forested native condition*

2.) Permeable pavement in accordance with BMP T5.15 in Chapter 5 of Volume V of the SWMMWW.
Response: *Permeable pavement is not proposed per the geotechnical engineer infiltration is not possible for the project.*

3.) Bioretention (See Chapter 7, Volume V of the SWMMWW) facilities that have a minimum horizontally projected surface area below the overflow which is at least 5% of the total surface area draining to it.
Response: *Bioretention facilities are not proposed for the project. Per the geotechnical engineer site has does not support infiltration.*

4.) Sheet Flow Dispersion in accordance with BMP T5.12, or Concentrated Flow Dispersion in accordance with BMP T5.11 in Chapter 5 of Volume V of the SWMMWW.
Response: *The proposed site constraints do not allow for sheet dispersion.*

4.5 Detention Modeling

The project proposes to construct one detention vault to detain the majority of the site stormwater runoff. A small portion of roof runoff will be tight lined to a dispersion trench. See discussion of trench sizing and modeling credit in section 4.4 of this report. Approximately 2,100 square feet of roof area will be tributary to the dispersion trench. Therefore, when modeling this area, it will be treated as till grass land cover. Refer to the table below for the revised modeled onsite basin. The detention vault has been designed to over detain the onsite basin area to meet the threshold discharge area which includes the offsite bypassed area. See Appendix C for the full MGS Flood report. The Point of Compliance (POC) for the total onsite and offsite flows is summarized below.

MODELED BASINS (POC)	Total Area = 1.37 acres
GROUND COVER	AREA (acres)
Till Forest (undisturbed)	0.40
Effective Impervious	0.70
Till Grass	0.17
Offsite (Bypass)	0.10

Predevelopment Runoff		Postdevelopment Runoff	
Tr (Years)	Discharge (cfs)	Tr (Years)	Discharge (cfs)
2-Year	5.211E-02	2-Year	6.161E-02
5-Year	8.509E-02	5-Year	7.923E-02
10-Year	0.112	10-Year	9.621E-02
25-Year	0.166	25-Year	0.122
50-Year	0.214	50-Year	0.128
100-Year	0.219	100-Year	0.141

4.5 Water Quality Calculations

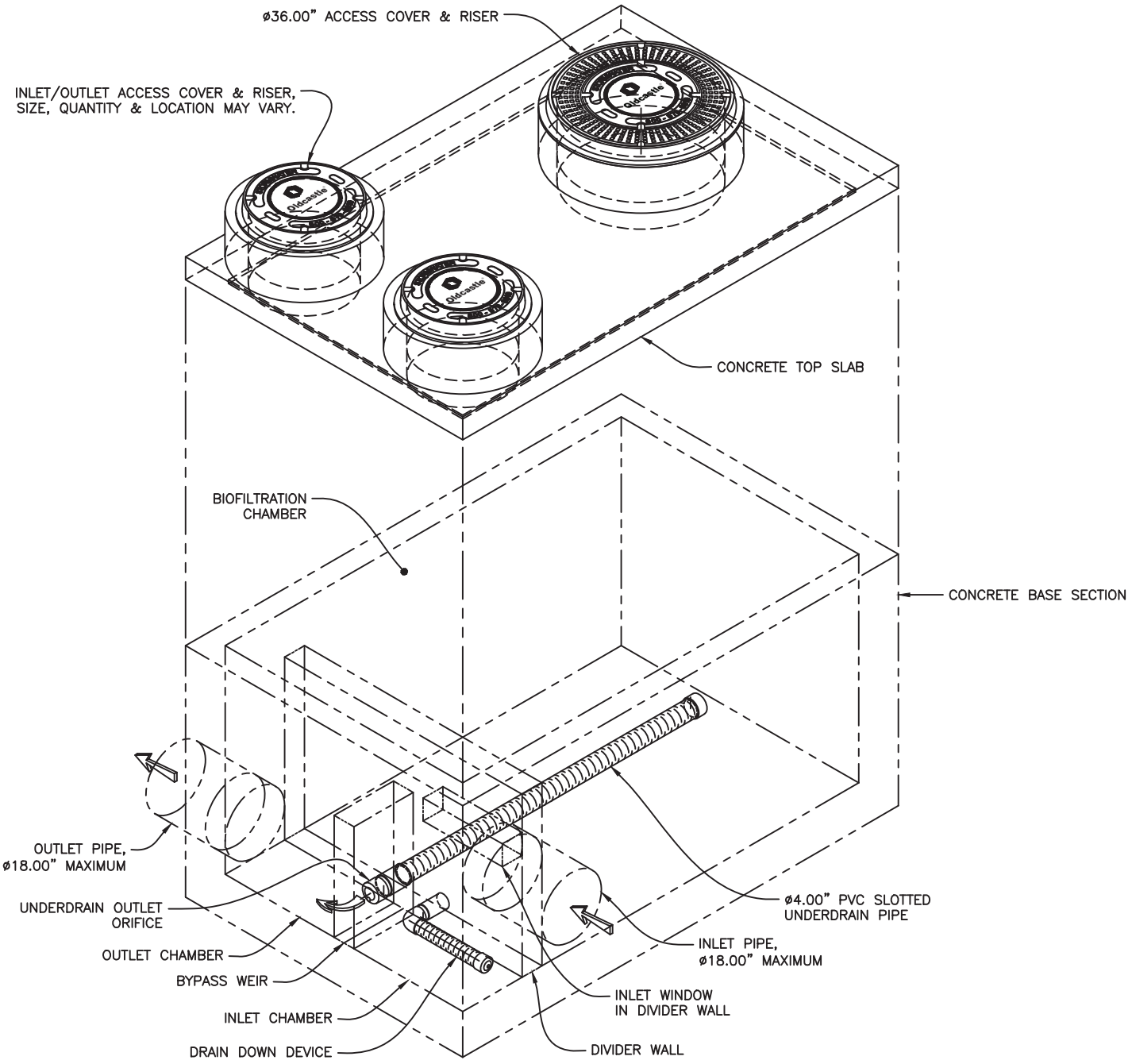
Onsite Water Quality

The project proposes to use Bio Pods by Oldcastle, a GULD approved treatment facility by the Department of Ecology's Tape program. These treatment facilities will provide all the required pollutant removal targets (80% TSS, Metals, 60% Phosphorus). The water quality facility will be located just downstream of the detention facilities and therefore, will be sized for the full 2-year release rate from the vault (0.061 cfs). Refer to the manufacture's details at the end of this section.

	Postdevelopment Runoff
Tr (Years)	Discharge (cfs)
2-Year	6.161E-02
5-Year	7.923E-02
10-Year	9.621E-02

Offsite Water Quality

The offsite target surface area consists of less than 5,000 square feet of pollution generating hard surface (PGHS). However, since the project is viewed as a whole threshold discharge area the offsite target surface will be routed to a separate ROW Bio Pod. The tributary area and sizing will be provided during final engineering design.



ISOMETRIC VIEW

FILTER MEDIA & DRAIN ROCK NOT SHOWN FOR CLARITY.
SCALE: 1X

NOTES:

1. LEFT CONFIGURATION SHOWN, MIRROR RIGHT CONFIGURATION OF INLET AND OUTLET CHAMBER AVAILABLE.
2. CONTACT OLDCASTLE INFRASTRUCTURE FOR ENGINEERING ASSISTANCE AND DETAIL DRAWINGS.
3. CONCRETE COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C890 & C913.

US Patents Pending

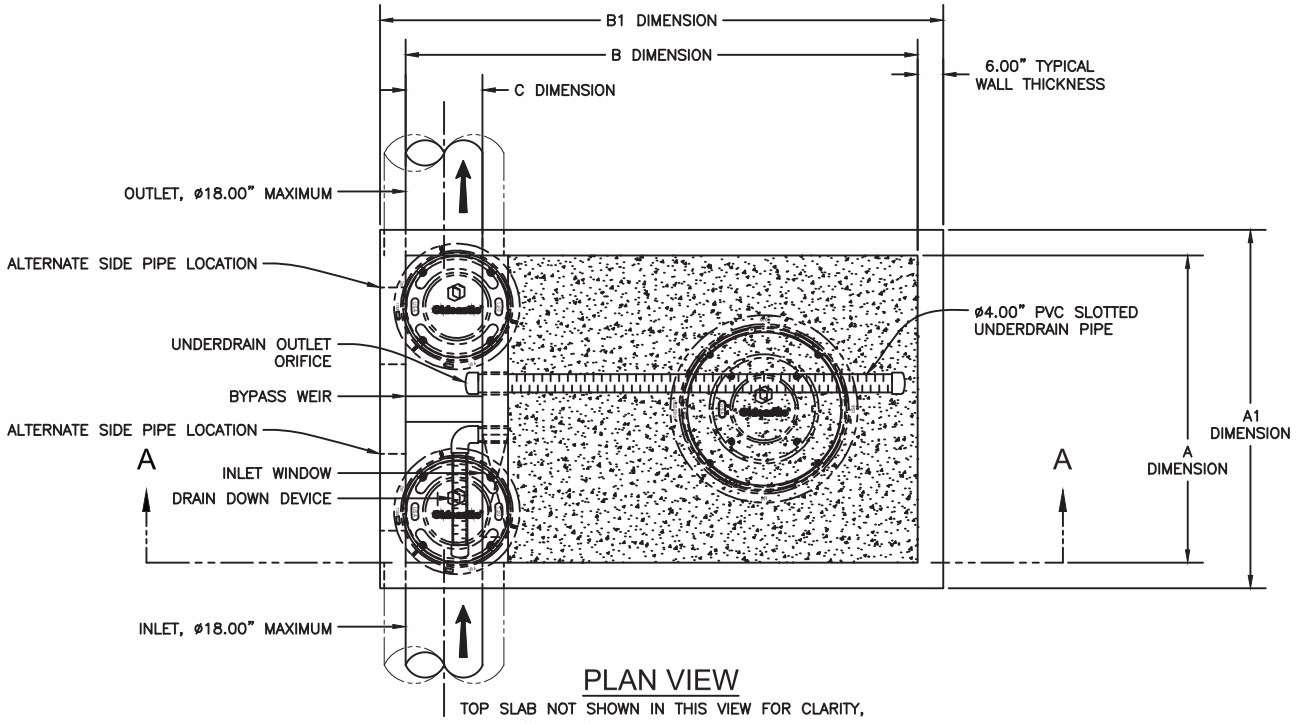
Bioretention/ Biofiltration

BioPod™ Biofilter Underground

Vault with Internal Bypass

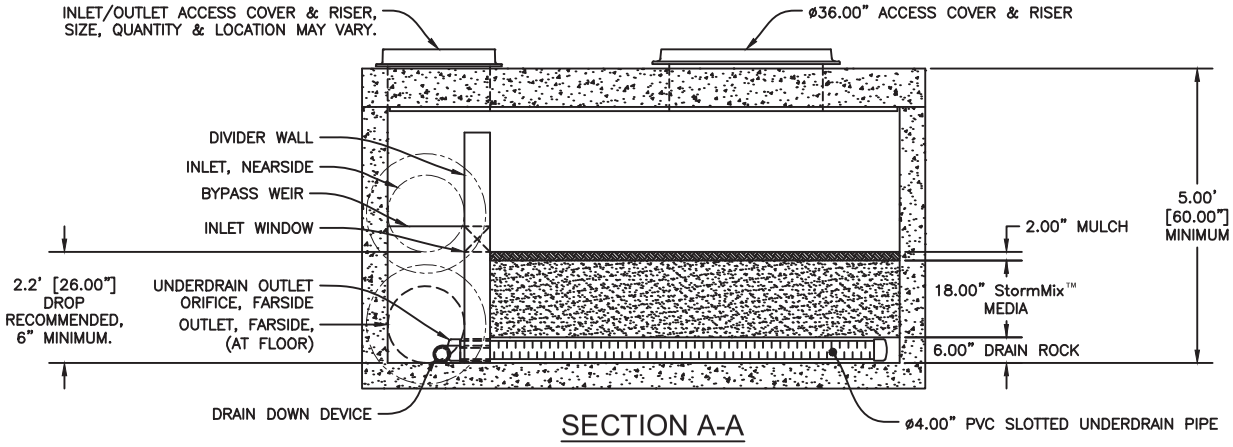
Oldcastle Infrastructure™
A CRH COMPANY

DRAWING NO.	REV	ECO	DATE	
BPU-IB	C	ECO-0169 CJS 3/6/20	PPS 3/9/20	SHEET 1 OF 2



PLAN VIEW

TOP SLAB NOT SHOWN IN THIS VIEW FOR CLARITY, ACCESS COVERS SHOWN IN PHANTOM.



SECTION A-A

MODEL	VAULT SIZE [1] (ID)			VAULT FOOTPRINT [1] (OD)		TREATMENT FLOW CAPACITY (GPM/CFS)	
	A DIM	B DIM	C DIM	A1 DIM	B1 DIM	1.6 GPM/SF (WA GULD[2])	1.8 GPM/SF (NJCAT[3])
BPU-46IB	4'	6'	1.5'	5'	7'	25.6 / 0.057	28.8 / 0.064
BPU-48IB	4'	8'	1.5'	5'	9'	38.4 / 0.086	43.2 / 0.096
BPU-412IB	4'	12'	1.5'	5'	13'	64.0 / 0.143	72.0 / 0.160
BPU-66IB	6'	6'	1.5'	7'	7'	38.4 / 0.086	43.2 / 0.096
BPU-68IB	6'	8'	1.5'	7'	9'	57.6 / 0.128	64.8 / 0.144
BPU-612IB	6'	12'	2'	7'	13'	91.2 / 0.203	102.6 / 0.229
BPU-812IB	8'	12'	2'	9'	13'	121.6 / 0.271	136.9 / 0.305
BPU-816IB	8'	16'	2'	9'	17'	172.8 / 0.385	194.4 / 0.433

[1] All Dimensions are nominal, ID=Inside Dimension, OD=Outside Dimension.
[2] Treatment flow capacity at 1.6 gpm/sf media surface area based on an WA Ecology GULD Approval for Basic, Enhanced & Phosphorus.
[3] Treatment flow capacity at 1.8 gpm/sf media surface area based on an NJCAT Verification & NJ DEP Certification.

SITE SPECIFIC DATA				
Structure ID				
Model Size				
Orientation (Left or Right)				
Treatment Flow Rate (cfs)				
Peak Flow Rate (cfs)				
Rim Elevation				
Pipe Data	Pipe Location (Front or Side)	Pipe Size	Pipe Type	Invert Elevation
Inlet				
Outlet				
Notes:				

US Patents Pending

Bioretention/ Biofiltration

BioPod™ Biofilter Underground

Vault with Internal Bypass

Oldcastle Infrastructure™ A CRH COMPANY

DRAWING NO.	REV	ECO	DATE	
BPU-IB	C	ECO-0169 CJS 3/6/20	PPS 3/9/20	SHEET 2 OF 2

SECTION 5: CONVEYANCE SYSTEM ANALYSIS AND DESIGN

The conveyance analysis will be included during final engineering review. The following is an explanation of the pervious manning's equation analysis of the stormwater bypass.

The approved Triad TIR from Issaquah Gateway Senior Housing project stamp date 3-21-16 assumed offsite stormwater flows from Newport Way coming discharging into the proposed project parcel at the northwest corner. Per direction from the city engineers these flows are to be used in order to determine the upstream flows and downstream conveyance.

Manning's equation is listed below,

$$Q = \frac{k}{n} A R_h^{2/3} S_0^{1/2}$$

Where:

Q = Flowrate (cfs)
V = Velocity (ft/s)
k = 1.49 (BG units)
n = Manning's Coefficient (0.012)
R_h = Hydraulic Radius
A = Flow Area (sf)
S_o = Longitudinal Slope (ft/ft)

Per the Triad TIR the combined flow from both 18" conveyance pipes at full flow using manning's equation equated to 46.49cfs + 26.86cfs = 73.35 cfs of total upstream flow. The analysis stated a proposed 36" pipe was downstream and had a capacity of 98.80 cfs which would provide sufficient capacity.

SECTION 6: SPECIAL REPORTS AND STUDIES

The following reports and assessments are provided for refence and informational purposes only. Core Design takes no responsibility or liability for these reports, assessments or designs as they were not completed under the direct supervision of Core Design.

- Geotechnical Engineering Report (TBD)

SECTION 7: OTHER PERMITS

- Right of Way Use Permit
- Building Permit

SECTION 8: ESC ANALYSIS AND DESIGN

The site will utilize section I-2.5.2 of the 2014 SWMMWW for the erosion and sedimentation control design. The erosion control design will be provided during the clearing and grading permits.

9 BOND QUANTITIES, FACILITY SUMMARIES, AND DECLARATION OF COVENANT

9.1 Bond Quantities

A Site Improvement Bond Quantity Worksheet will be included during final engineering review

9.2 Facility Summaries

Not applicable.

9.3 Declaration of Covenant

Not applicable.

SECTION 10: OPERATIONS AND MAINTENANCE

A general location and description of the stormwater management facilities are as follows.

Runoff from the proposed building roof, access road, sidewalks, and landscaped areas are collected by cleanouts, footing drains and catch basins. The majority of site runoff will be conveyed to the proposed detention vault and then through a water quality vault for treatment. The treated and detained stormwater is tightlined in a piped conveyance system to the northeast where a pumped system will raise the runoff to an onsite catch basin. From this point the runoff will gravity flow to the existing bubble up energy dissipator disperse the flows towards Schneider Creek. The operation and maintenance of the facilities described above will be performed by the future Home Owners association.

The proposed stormwater conveyance system in the ROW will be inspected and maintained by the City of Issaquah. A proposed easement will allow the City of Issaquah access to maintain the associated conveyance system on the property.

Design of the storm drainage system is based on the City of Issaquah 2017 addendum to the 2014 SWMMWW. The operations and maintenance information for the proposed facilities will be included during final design.

Appendix A

Parcel & Basin Information

King County Parcel Report

Department of Assessments

500 Fourth Avenue, Suite ADM-AS-0708, Seattle, WA 98104

Office Hours: Mon - Fri 8:30 a.m. to 4:30 p.m.

TEL: 206-296-7300
FAX: 206-296-5107
TTY: 206-296-7888

Send us mail

- New Search
- Property Tax Bill
- Map This Property
- Glossary of Terms
- Area Report
- Print Property Detail

PARCEL DATA

Parcel	202406-9057	Jurisdiction	ISSAQUAH
Name	MILANO ISSAQUAH APARTMENTS	Levy Code	1405
Site Address	2300 NEWPORT WAY NW 98027	Property Type	C
Geo Area	95-25	Plat Block / Building Number	
Spec Area		Plat Lot / Unit Number	
Property Name	SFR/Commercial Land	Quarter-Section-Township-Range	SW-20-24-6

Legal Description

POR OF NW 1/4 OF SW 1/4-BAAP ON ELY MGN OF ST RD # 2-D 149.08 FT N OF N LN OF SD NW 1/4 OF SW 1/4 TH S 88-21-25 E 501.50 FT TH S 02-11-08 W 405.95 FT TH N 87-53-56 W 209.11 FT TO TPOB TH S 01-41-00 W 357.12 FT M/L TO NELY MGN OF ST RD # 2-D TH NLY ALG SD RD MGN 450.10 FT M/L TO PT BRG N 87-53-56 W OF TPOB TH S 87-53-56 E 250.48 FT M/L TO TPOB
PLat Block:
Plat Lot:

LAND DATA

Highest & Best Use As If Vacant	MULTI-FAMILY DWELLING	Percentage Unusable	
Highest & Best Use As Improved	TEAR DOWN	Unbuildable	NO
Present Use	Single Family(C/I Zone)	Restrictive Size Shape	NO
Land SqFt	58,491	Zoning	VR
Acres	1.34	Water	WATER DISTRICT
		Sewer/Septic	PUBLIC
		Road Access	PUBLIC
		Parking	ADEQUATE
		Street Surface	PAVED

Views

Rainier	
Territorial	
Olympics	
Cascades	
Seattle Skyline	
Puget Sound	
Lake Washington	
Lake Sammamish	
Lake/River/Creek	
Other View	

Waterfront

Waterfront Location	
Waterfront Footage	0
Lot Depth Factor	0
Waterfront Bank	
Tide/Shore	
Waterfront Restricted Access	
Waterfront Access Rights	NO
Poor Quality	NO
Proximity Influence	NO

Designations

Historic Site	
Current Use	(none)
Nbr Bldg Sites	
Adjacent to Golf Fairway	NO
Adjacent to Greenbelt	NO
Other Designation	NO
Deed Restrictions	NO
Development Rights Purchased	NO
Easements	NO
Native Growth Protection Easement	NO
DNR Lease	NO

Nuisances

Topography	
Traffic Noise	MODERATE
Airport Noise	
Power Lines	NO
Other Nuisances	NO

Problems

Water Problems	NO
Transportation Concurrency	NO
Other Problems	NO

Environmental

Environmental	YES

Environmental Type	Information Source	Delineation study	Percentage Affected
Stream	JURISDICTION	N	0

BUILDING

Building Number	1
Building Description	VETERINARY HOSPITAL
Number Of Buildings Aggregated	1

Click the camera to see more pictures.
Picture of Building 1

Reference Links:

- King County Tax Links
- Property Tax Advisor
- Washington State Department of Revenue (External link)
- Washington State Board of Tax Appeals (External link)
- Board of Appeals/Equalization
- Districts Report
- iMap
- Recorder's Office

Scanned images of surveys and other map documents

Predominant Use	VETERINARY HOSPITAL (381)
Shape	Rect or Slight Irreg
Construction Class	WOOD FRAME
Building Quality	AVERAGE
Stories	1
Building Gross Sq Ft	3,080
Building Net Sq Ft	2,920
Year Built	1961
Eff. Year	1980
Percentage Complete	100
Heating System	FORCED AIR UNIT
Sprinklers	
Elevators	

Section(s) Of Building Number: 1

Section Number	Section Use	Description	Stories	Height	Floor Number	Gross Sq Ft	Net Sq Ft
1	VETERINARY HOSPITAL (381)		1	8		3,080	2,920

TAX ROLL HISTORY

Account	Valued Year	Tax Year	Omit Year	Levy Code	Appraised Land Value ($)	Appraised Imps Value ($)	Appraised Total Value ($)	New Dollars ($)	Taxable Land Value ($)	Taxable Imps Value ($)	Taxable Total Value ($)	Tax Value Reason
202406905705	2019	2020		1405	627,200	1,000	628,200	0	627,200	1,000	628,200	
202406905705	2018	2019		1405	522,700	1,000	523,700	0	522,700	1,000	523,700	
202406905705	2017	2018		1405	522,700	1,000	523,700	0	522,700	1,000	523,700	
202406905705	2016	2017		1400	470,400	35,500	505,900	0	470,400	35,500	505,900	
202406905705	2015	2016		1400	418,100	87,800	505,900	0	418,100	87,800	505,900	
202406905705	2014	2015		1400	342,000	163,900	505,900	0	342,000	163,900	505,900	
202406905705	2013	2014		1400	342,000	163,900	505,900	0	342,000	163,900	505,900	
202406905705	2012	2013		1400	342,000	163,900	505,900	0	342,000	163,900	505,900	
202406905705	2011	2012		1400	324,000	155,000	479,000	0	324,000	155,000	479,000	
202406905705	2010	2011		1400	342,000	169,000	511,000	0	342,000	169,000	511,000	
202406905705	2009	2010		1400	433,000	62,000	495,000	0	433,000	62,000	495,000	
202406905705	2008	2009		1400	482,000	143,000	625,000	0	482,000	143,000	625,000	
202406905705	2007	2008		1415	435,000	136,000	571,000	0	435,000	136,000	571,000	
202406905705	2006	2007		1415	435,000	136,000	571,000	0	435,000	136,000	571,000	
202406905705	2005	2006		1415	403,000	119,000	522,000	0	403,000	119,000	522,000	
202406905705	2004	2005		1415	381,000	76,000	457,000	0	381,000	76,000	457,000	
202406905705	2003	2004		1415	381,000	76,000	457,000	0	381,000	76,000	457,000	
202406905705	2002	2003		1415	381,000	76,000	457,000	0	381,000	76,000	457,000	
202406905705	2001	2002		1415	360,000	73,000	433,000	0	360,000	73,000	433,000	
202406905705	2000	2001		1415	328,000	76,000	404,000	0	328,000	76,000	404,000	
202406905705	1999	2000		1415	286,000	88,000	374,000	0	286,000	88,000	374,000	
202406905705	1998	1999		1415	260,000	55,000	315,000	0	260,000	55,000	315,000	
202406905705	1997	1998		1415	0	0	0	0	156,800	62,500	219,300	
202406905705	1996	1997		1415	0	0	0	0	156,800	62,500	219,300	
202406905705	1994	1995		1415	0	0	0	0	156,800	62,500	219,300	
202406905705	1992	1993		1435	0	0	0	0	182,700	16,700	199,400	
202406905705	1990	1991		1435	0	0	0	0	163,100	14,900	178,000	
202406905705	1988	1989		1435	0	0	0	0	117,600	6,800	124,400	
202406905705	1986	1987		1435	0	0	0	0	70,600	67,200	137,800	
202406905705	1984	1985		1435	0	0	0	0	30,900	68,200	99,100	
202406905705	1982	1983		6775	0	0	0	0	30,900	68,200	99,100	

SALES HISTORY

Excise Number	Recording Number	Document Date	Sale Price	Seller Name	Buyer Name	Instrument	Sale Reason
3006508	20190823000650	8/16/2019	$1,700,000.00	HILDRETH JACQUELINE L	MILANO ISSAQUAH APARTMENTS LLC	Statutory Warranty Deed	None
2966964	20181219000619	12/3/2018	$0.00	HILDRETH JACQUELINE L+DAVID A	HILDRETH JACQUELINE L	Statutory Warranty Deed	None

REVIEW HISTORY

PERMIT HISTORY

HOME IMPROVEMENT EXEMPTION

- New Search

- Property Tax Bill
- Map This Property
- Glossary of Terms
- Area Report
- Print Property Detail
-

Updated: Jan. 29, 2019

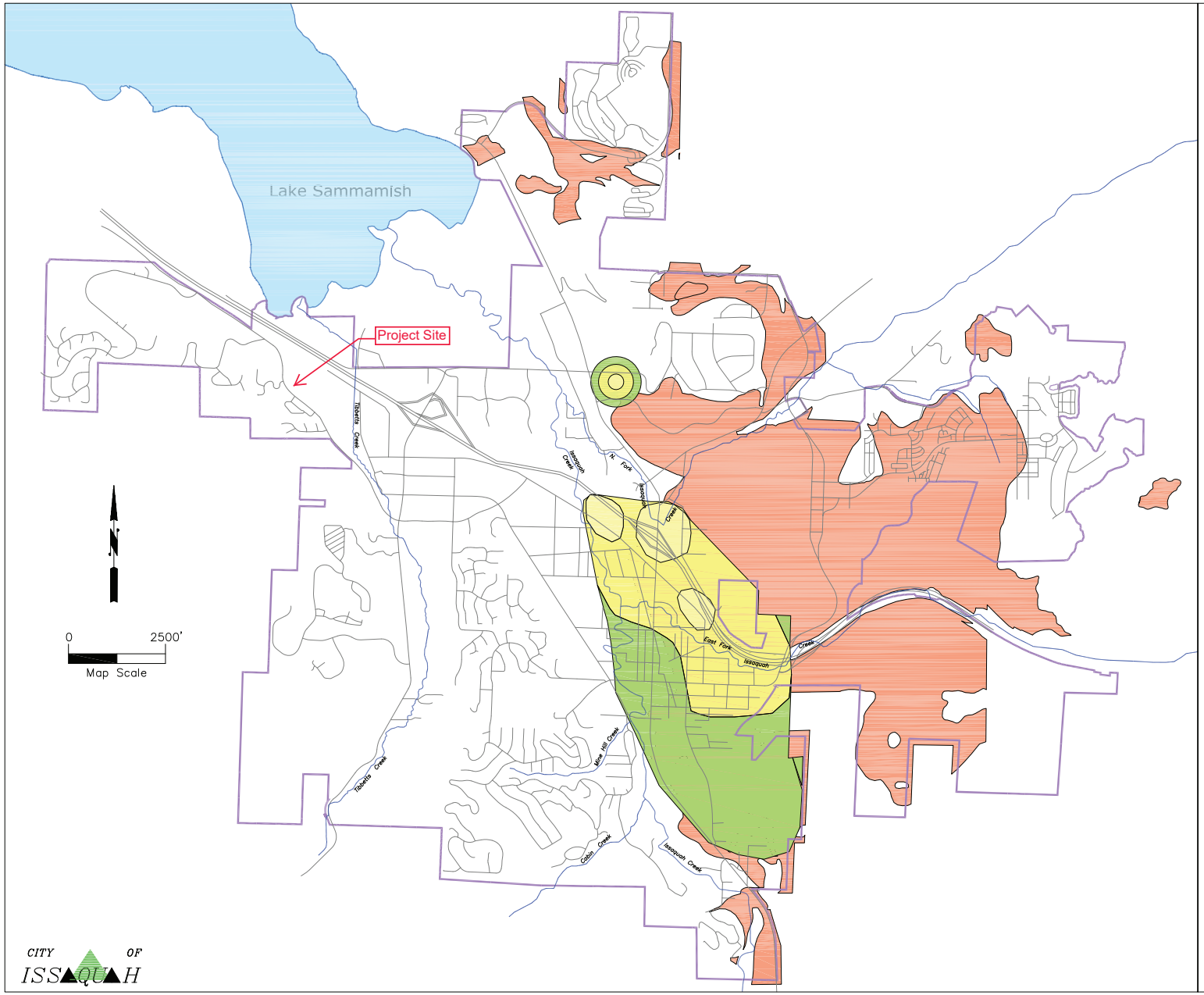
Information for... **Do more online**
Get help

Appendix B

Resource Review & Off-site Analysis Documentation

FEMA Map (53033C0687 F)

Critical Aquifer Recharge (CARA) Map



CRITICAL AQUIFER RECHARGE AREA CLASSIFICATION MAP

LEGEND

CARA CLASSES

- Class 1 - 1 & 5 year Wellhead Capture Zone
- Class 2 - 10 year Wellhead Capture Zone
- Class 3 - High Aquifer Recharge Area

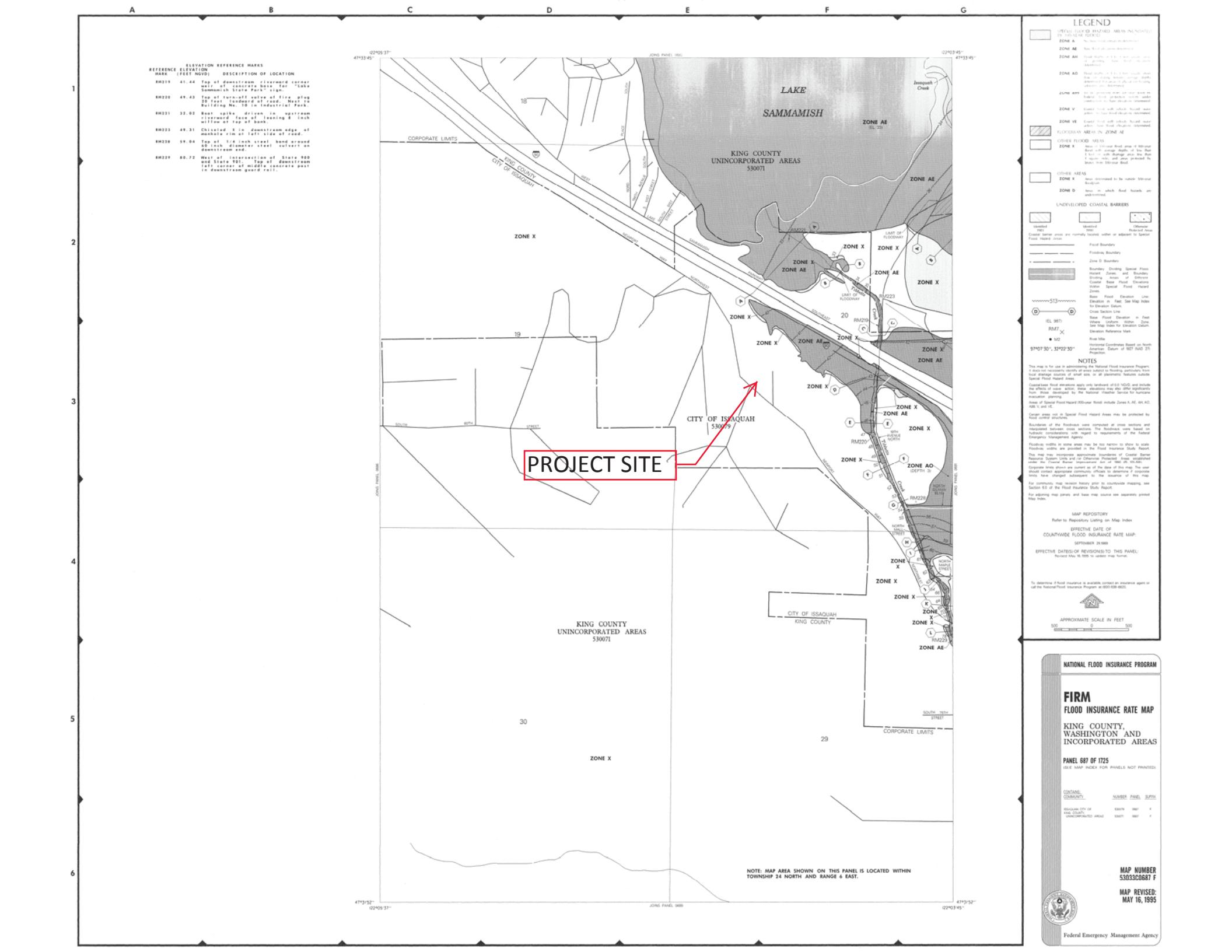
AB 5676
Exhibit A
Page A-66

Notes:
1) CARA Class 1 and Class 2 are based on wellhead capture zones that are documented in Lower Issaquah Valley Wellhead Protection Plan (Golder Associates, 1993) and Wellhead Protection Delineation for Overdale Well (Golder Associates, 1997).

2) CARA Class 3– High Aquifer Recharge Area is based on surficial geology and soil units have high to moderate susceptibility to contamination. Sources for recharge area mapping include: Geologic Map of the Issaquah 7.5' Quadrangle (Booth and Minard, 1992) for all areas except Issaquah Highlands; Report on Geotechnical Services, Draft Environmental Impact Statement for Proposed Grand Ridge Development (Geoengineers, 1995) for Issaquah Highlands; and King County Soil Survey (U.S. Soil Conservation Service, 1973) for all areas.

CITY OF ISSAQUAH

Exhibit C to Ordinance: CARA Map


ELEVATION REFERENCE MARKS
REFERENCE MARK ELEVATION (FEET NGVD) DESCRIPTION OF LOCATION
RM219 41.44 Top of downstream riverward corner weir of concrete base for "Lake Sammamish State Park" sign.
RM220 49.43 Top of turn-off valve of fire plug 20 feet landward of road. Next to Building No. 10 in Industrial Park.
RM221 33.02 Boat spike driven in upstream riverward face of leaning 8 inch willow at top of bank.
RM223 49.31 Chiseled X in downstream edge of manhole rim at left side of road.
RM228 59.04 Top of 1/4 inch steel bend around 48 inch diameter steel culvert on downstream end.
RM229 80.72 West of intersection of State 900 and State 901. Top of downstream left corner of middle concrete post in downstream guard rail.
LAKE SAMMAMISH
Issaquah Creek
KING COUNTY UNINCORPORATED AREAS 530071
CITY OF ISSAQUAH 530079
CORPORATE LIMITS
KING COUNTY
CITY OF ISSAQUAH
LIMIT OF FLOODWAY
ZONE X
ZONE AE
ZONE AO
PROJECT SITE
RM221
RM223
RM219
RM220
RM228
RM229
JOINS PANEL 0680
JOINS PANEL 0688
JOINS PANEL 0686
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 24 NORTH AND RANGE 6 EAST.
LEGEND
SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
ZONE A
ZONE AE
ZONE AH
ZONE AO
ZONE AR
ZONE V
ZONE VE
FLOODWAY AREAS IN ZONE AE
OTHER FLOOD AREAS
ZONE X
OTHER AREAS
ZONE X
ZONE D
UNDEVELOPED COASTAL BARRIERS
Flood Boundary
Floodway Boundary
Zone D Boundary
Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.
Cross Section Line
Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
Elevation Reference Mark
River Mile
97°07'30", 32°22'30"
Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.
NOTES
MAP REPOSITORY
Refer to Repository Listing on Map Index
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:
SEPTEMBER 29,1989
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
Revised May 16, 1995 to update map format.
APPROXIMATE SCALE IN FEET
500 0 500
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
KING COUNTY, WASHINGTON AND INCORPORATED AREAS
PANEL 687 OF 1725
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
ISSAQUAH, CITY OF 530079 0687 F
KING COUNTY, UNINCORPORATED AREAS 530071 0687 F
MAP NUMBER 53033C0687 F
MAP REVISED: MAY 16, 1995
Federal Emergency Management Agency

Appendix C

Vault Sizing

MGS Flood Report

MGS FLOOD
PROJECT REPORT

Program Version: MGSFlood 4.52
Program License Number: 200210008
Project Simulation Performed on: 06/24/2021 9:27 AM
Report Generation Date: 06/24/2021 9:27 AM

Input File Name: 19070 MGS Flood.fld
Project Name: Milano Apartments
Analysis Title:
Comments:

PRECIPITATION INPUT

Computational Time Step (Minutes): 15

Extended Precipitation Time Series Selected
Climatic Region Number: 19

Full Period of Record Available used for Routing
Precipitation Station : 96005605 Puget East 56 in_5min 10/01/1939-10/01/2097
Evaporation Station : 961056 Puget East 56 in MAP
Evaporation Scale Factor : 0.750

HSPF Parameter Region Number: 1
HSPF Parameter Region Name : USGS Default

********** Default HSPF Parameters Used (Not Modified by User) **********

********** WATERSHED DEFINITION **********

Predevelopment/Post Development Tributary Area Summary

	Predeveloped	Post Developed
Total Subbasin Area (acres)	1.370	1.370
Area of Links that Include Precip/Evap (acres)	0.000	0.000
Total (acres)	1.370	1.370

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 2

---------- Subbasin : Predev Onsite ----------

	-------Area (Acres) --------
Till Forest	1.270
Subbasin Total	1.270

---------- Subbasin : Predev Offsite ----------

	-------Area (Acres) --------
Till Forest	0.100
Subbasin Total	0.100

----------SCENARIO: POSTDEVELOPED
Number of Subbasins: 2

---------- Subbasin : Dev Onsite ----------

	-------Area (Acres) --------
Till Forest	0.400
Till Grass	0.170
Impervious	0.700

Subbasin Total 1.270

---------- Subbasin : Dev Offsite ----------
-------Area (Acres) --------
Impervious 0.100

Subbasin Total 0.100

********** **LINK DATA** **********

----------SCENARIO: PREDEVELOPED
Number of Links: 1

Link Name: Predev POC
Link Type: Copy
Downstream Link: None

********** **LINK DATA** **********

----------SCENARIO: POSTDEVELOPED
Number of Links: 2

Link Name: Dev POC
Link Type: Copy
Downstream Link: None

Link Name: Vault
Link Type: Structure
Downstream Link Name: Dev POC

Prismatic Pond Option Used
Pond Floor Elevation (ft) : 100.00
Riser Crest Elevation (ft) : 106.80
Max Pond Elevation (ft) : 107.80
Storage Depth (ft) : 6.80
Pond Bottom Length (ft) : 120.0
Pond Bottom Width (ft) : 22.0
Pond Side Slopes (ft/ft) : L1= 0.00 L2= 0.00 W1= 0.00 W2= 0.00
Bottom Area (sq-ft) : 2640.
Area at Riser Crest El (sq-ft) : 2,640.
(acres) : 0.061
Volume at Riser Crest (cu-ft) : 17,952.
(ac-ft) : 0.412
Area at Max Elevation (sq-ft) : 2640.
(acres) : 0.061
Vol at Max Elevation (cu-ft) : 20,592.
(ac-ft) : 0.473

Hydraulic Conductivity (in/hr) : 0.00
Massmann Regression Used to Estimate Hydralic Gradient
Depth to Water Table (ft) : 100.00
Bio-Fouling Potential : Low
Maintenance : Average or Better

Riser Geometry
Riser Structure Type : Circular
Riser Diameter (in) : 18.00
Common Length (ft) : 0.000
Riser Crest Elevation : 106.80 ft

Hydraulic Structure Geometry

Number of Devices: 4

---Device Number 1 ---
Device Type : Circular Orifice
Control Elevation (ft) : 100.00
Diameter (in) : 0.69
Orientation : Horizontal
Elbow : No

---Device Number 2 ---
Device Type : Circular Orifice
Control Elevation (ft) : 104.00
Diameter (in) : 0.94
Orientation : Horizontal
Elbow : Yes

---Device Number 3 ---
Device Type : Circular Orifice
Control Elevation (ft) : 104.80
Diameter (in) : 0.75
Orientation : Horizontal
Elbow : Yes

---Device Number 4 ---
Device Type : Circular Orifice
Control Elevation (ft) : 105.50
Diameter (in) : 0.50
Orientation : Horizontal
Elbow : Yes

**********FLOOD FREQUENCY AND DURATION STATISTICS**********

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 2
Number of Links: 1

********** Subbasin: Predev Onsite **********

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	4.831E-02
5-Year	7.888E-02
10-Year	0.104
25-Year	0.153
50-Year	0.199
100-Year	0.203
200-Year	0.330
500-Year	0.501

********** Subbasin: Predev Offsite **********

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	3.804E-03
5-Year	6.211E-03
10-Year	8.210E-03
25-Year	1.208E-02
50-Year	1.564E-02
100-Year	1.596E-02
200-Year	2.596E-02
500-Year	3.945E-02

********** Link: Predev POC ********** Link Inflow Frequency Stats

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	5.211E-02
5-Year	8.509E-02
10-Year	0.112
25-Year	0.166
50-Year	0.214
100-Year	0.219
200-Year	0.356
500-Year	0.540

----------SCENARIO: POSTDEVELOPED

Number of Subbasins: 2
Number of Links: 2

********** **Subbasin: Dev Onsite** **********

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	0.340
5-Year	0.431
10-Year	0.533
25-Year	0.631
50-Year	0.873
100-Year	0.956
200-Year	0.983
500-Year	1.017

********** **Subbasin: Dev Offsite** **********

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	4.257E-02
5-Year	5.510E-02
10-Year	6.531E-02
25-Year	7.858E-02
50-Year	9.626E-02
100-Year	0.110
200-Year	0.116
500-Year	0.124

********** Link: Dev POC ********** Link Inflow Frequency Stats

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	6.161E-02
5-Year	7.923E-02
10-Year	9.621E-02
25-Year	0.122
50-Year	0.128
100-Year	0.141
200-Year	0.191
500-Year	0.257

********** Link: Vault ********** Link Inflow Frequency Stats

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	0.340
5-Year	0.431
10-Year	0.533
25-Year	0.631
50-Year	0.873
100-Year	0.956
200-Year	0.983
500-Year	1.017

********** Link: Vault ********** Link Outflow 1 Frequency Stats

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	Flood Peak (cfs)
2-Year	2.466E-02
5-Year	4.719E-02
10-Year	6.814E-02
25-Year	8.450E-02
50-Year	9.385E-02
100-Year	0.131
200-Year	0.173
500-Year	0.230

********** Link: Vault ********** Link WSEL Stats

WSEL Frequency Data(ft)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	WSEL Peak (ft)
1.05-Year	102.093
1.11-Year	102.262
1.25-Year	102.689
2.00-Year	103.812
3.33-Year	104.313
5-Year	104.772
10-Year	105.465
25-Year	106.091
50-Year	106.582
100-Year	106.811

**********Groundwater Recharge Summary **********

Recharge is computed as input to Perlnd Groundwater Plus Infiltration in Structures

Total Predeveloped Recharge During Simulation

Model Element	Recharge Amount (ac-ft)
Subbasin: Predev Onsite	297.971
Subbasin: Predev Offsite	23.462
Link: Predev POC	0.000
Total:	321.433

Total Post Developed Recharge During Simulation

Model Element	Recharge Amount (ac-ft)
Subbasin: Dev Onsite	118.728
Subbasin: Dev Offsite	0.000
Link: Dev POC	0.000
Link: Vault	0.000

Total: 118.728

Total Predevelopment Recharge is Greater than Post Developed
Average Recharge Per Year, (Number of Years= 158)
Predeveloped: 2.034 ac-ft/year, Post Developed: 0.751 ac-ft/year

************Water Quality Facility Data **************

----------SCENARIO: PREDEVELOPED

Number of Links: 1

********** Link: Predev POC **********

Infiltration/Filtration Statistics----------
Inflow Volume (ac-ft): 312.60
Inflow Volume Including PPT-Evap (ac-ft): 312.60
Total Runoff Infiltrated (ac-ft): 0.00, 0.00%
Total Runoff Filtered (ac-ft): 0.00, 0.00%
Primary Outflow To Downstream System (ac-ft): 312.60
Secondary Outflow To Downstream System (ac-ft): 0.00
Percent Treated (Infiltrated+Filtered)/Total Volume: 0.00%

----------SCENARIO: POSTDEVELOPED

Number of Links: 2

********** Link: Dev POC **********

Infiltration/Filtration Statistics----------
Inflow Volume (ac-ft): 688.09
Inflow Volume Including PPT-Evap (ac-ft): 688.09
Total Runoff Infiltrated (ac-ft): 0.00, 0.00%
Total Runoff Filtered (ac-ft): 0.00, 0.00%
Primary Outflow To Downstream System (ac-ft): 688.09
Secondary Outflow To Downstream System (ac-ft): 0.00
Percent Treated (Infiltrated+Filtered)/Total Volume: 0.00%

********** Link: Vault **********

Basic Wet Pond Volume (91% Exceedance): 4814. cu-ft
Computed Large Wet Pond Volume, 1.5*Basic Volume: 7222. cu-ft

Infiltration/Filtration Statistics----------
Inflow Volume (ac-ft): 621.70
Inflow Volume Including PPT-Evap (ac-ft): 621.70
Total Runoff Infiltrated (ac-ft): 0.00, 0.00%
Total Runoff Filtered (ac-ft): 0.00, 0.00%
Primary Outflow To Downstream System (ac-ft): 621.65
Secondary Outflow To Downstream System (ac-ft): 0.00
Percent Treated (Infiltrated+Filtered)/Total Volume: 0.00%

************Compliance Point Results **************

Scenario Predeveloped Compliance Link: Predev POC
Scenario Postdeveloped Compliance Link: Dev POC

***** Point of Compliance Flow Frequency Data *****
Recurrence Interval Computed Using Gringorten Plotting Position

Predevelopment Runoff		Postdevelopment Runoff	
Tr (Years)	Discharge (cfs)	Tr (Years)	Discharge (cfs)
2-Year	5.211E-02	2-Year	6.161E-02
5-Year	8.509E-02	5-Year	7.923E-02

10-Year	0.112	10-Year	9.621E-02
25-Year	0.166	25-Year	0.122
50-Year	0.214	50-Year	0.128
100-Year	0.219	100-Year	0.141
200-Year	0.356	200-Year	0.191
500-Year	0.540	500-Year	0.257

** Record too Short to Compute Peak Discharge for These Recurrence Intervals

**** **Flow Duration Performance** ****

Excursion at Predeveloped 50%Q2 (Must be Less Than or Equal to 0%):	-1.4%	PASS
Maximum Excursion from 50%Q2 to Q2 (Must be Less Than or Equal to 0%):	-1.4%	PASS
Maximum Excursion from Q2 to Q50 (Must be less than 10%):	0.0%	PASS
Percent Excursion from Q2 to Q50 (Must be less than 50%):	0.0%	PASS

MEETS ALL FLOW DURATION DESIGN CRITERIA: PASS

Appendix D

Special Reports and Studies

Preliminary Geotechnical report

Preliminary
Geotechnical Engineering Services

2300 Newport Way Development
Issaquah, Washington

for
Milano Issaquah Apartments

September 25, 2020

GeoEngineers
Earth Science + Technology

Preliminary
Geotechnical Engineering Services

2300 Newport Way Development
Issaquah, Washington

for
Milano Issaquah Apartments

September 25, 2020

GeoEngineers

17425 NE Union Hill Road, Suite 250
Redmond, Washington 98052
425.861.6000

Preliminary
Geotechnical Engineering Services

2300 Newport Way Development
Issaquah, Washington

File No. 24000-001-00

September 25, 2020

Prepared for:

Milano Issaquah Apartments
12224 NE 8th Street
Bellevue, Washington 98005

Attention: Hossein Khorram

Prepared by:

GeoEngineers, Inc.
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Senior Geotechnical Engineer

Debra C. Overbay, PE
Associate

CAH:AJH:DCO:leh

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LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

This report summarizes the results of GeoEngineers, Inc.'s (GeoEngineers) preliminary geotechnical engineering services for the proposed Milano Apartments Development project located at 2300 Newport Way NW in Issaquah, Washington. The site is bounded by the Issaquah Senior Center to the north, Schneider Creek and the Issaquah Gateway Development to the east, and Newport Way NW to the west and south. The site is shown relative to surrounding physical features on the Vicinity Map (Figure 1) and the Site and Exploration Plan (Figure 2).

The purpose of this report is to provide preliminary geotechnical engineering considerations for design of the new development. Site specific explorations will be completed in October as a basis for preparing our final design report.

2.0 PROJECT DESCRIPTION

Our understanding of the project is based on discussions with the project team, review of available soils information for the site and our experience. GeoEngineers has previously completed geotechnical design services for a nearby project located immediately east and north of the site as well as for roadway improvements along Newport Way.

The site is currently developed with one residential structure, outbuildings, and a small agricultural field. Schneider Creek is located offsite and east of the property. The project includes demolishing the existing buildings and constructing a new five-story, 101-unit apartment building with two levels of below grade parking and other site improvements.

3.0 SITE GEOLOGY

Published geologic information for the project vicinity includes a United States Geological Survey (USGS) geologic map of the East Half of the Bellevue South 7.5' x 15' Quadrangle, Issaquah Area, King County, Washington (Booth et al. 2012). The mapped geologic unit within the project site consists of alluvial deposits. The alluvium locally includes sediments of similar texture and age found in low-lying areas adjacent to Lake Sammamish, particularly beach and shallow lacustrine deposits. The alluvium generally consists of cobble gravel, pebbly sand, and sandy silt, moderately sorted; deposited along major stream channels.

Other mapped units in the site vicinity consist of fan deposits, mass-wastage deposits and glacial deposits. The fan deposits are mapped south of SE Newport Way and consist of boulders, cobbles, sand, and diamict, deposited in lobate form where streams emerge from confining valleys onto areas of reduced gradients. The mass-wastage deposits are also mapped south of SE Newport Way and consist of colluvium, soil and landslide debris having indistinct morphology. The pre-Olympia age glacial deposits are mapped on the northwest corner of the site and consist of weakly to strongly oxidized silt, sand, gravel and till of glacial origin.

4.0 SITE CONDITIONS

4.1. Surface Conditions

The site is bounded by the Issaquah Senior Center to the north, Schneider Creek and the Issaquah Gateway Development to the east, and Newport Way NW to the west and south. As previously discussed, the site is currently developed with a residential structure, outbuildings, and a forested area occupying the east portion of the property. Existing site grades drop about 15 feet from southeast to northwest across the site, ranging from approximate Elevation 80 feet (NAVD88) at the southeast side of the site to approximate Elevation 65 feet at the northwest side.

Vegetation consists of a mixture of deciduous and coniferous trees along the east and in the northwest corner. Low grass covers the remaining site area with some areas of overgrown grass, weeds, and blackberries.

Existing buried utilities are anticipated within and near the existing buildings and within the public right-of-way along Newport Way NW. These utilities may include, but are not limited to, gas, electricity, sanitary sewer, storm drain, fiber optic, telecommunications, and water.

4.2. Subsurface Soil Conditions

GeoEngineers' understanding of subsurface conditions is based on a review of existing geotechnical information in the vicinity of the project site. The approximate locations of the previous explorations near the site are presented in the Site and Exploration Plan, Figure 2. Logs of the previous explorations are presented in Appendix A. The existing subsurface information includes:

- The logs of two borings (GEI-5 and GEI-6) completed by GeoEngineers in 2014, as part of the AMLI Issaquah development geotechnical investigation.
- The log of one test pit (TP-5) completed by GeoEngineers in 2016, as part of the Issaquah Senior Center development project.
- The logs of two borings (GEI-3 and GEI-4) completed by GeoEngineers in 2018, as part of the Newport Way Improvements project.

The explorations completed on the north side of the property, GEI-5, GEI-6, and TP-5 for the Issaquah Senior Center project, generally encountered a shallow topsoil layer overlying fill soils. Medium dense silty/clayey granular deposits underlie the fill. Dense glacial deposits were encountered at depth (below a depth of about 15 to 20 feet). The fill generally consists of sands with variable silt, clay, and gravel content. The underlying recent deposits consist of medium dense sand with variable silt/clay and gravel content. The glacial deposits consist of dense to very dense sand with variable silt content.

The explorations along the south side of the property and building footprint, GEI-3 and GEI-4 for the Newport Way Improvements project, generally encountered a shallow topsoil layer, overlying fill soils and medium dense sand and gravel. Boring GEI-3 encountered very stiff silty clay (alluvial deposit) at a depth of approximately 19 feet below the ground surface (bgs). The topsoil and fill layers typically extend to a depth of 5 to 9 feet bgs.

4.3. Groundwater Conditions

Based on our review of existing geotechnical information groundwater varied greatly based on site topography. A seep was encountered near the base of the slope during construction of the Issaquah Senior project. Groundwater levels are expected to fluctuate as a result of season and precipitation.

5.0 STEEP SLOPE CONSIDERATIONS/EXEMPTION ASSESSMENT

GeoEngineers previously provided a summary letter for steep slope evaluation dated April 23, 2020. Our conclusions regarding steep slopes considerations are also provided below.

5.1. Steep Slope Definitions

Per City of Issaquah Municipal Code Chapter 18.10 Environmental Protection, steep slope hazard areas are defined as "Any ground that rises at an inclination of forty (40) percent or more within a vertical elevation change of at least (10) feet…"

Per section 18.10.580 Steep Slope Hazard Areas – Protection mechanisms and permitted alterations, E. Limited Exemptions: number 2. "Any slope which has been created through previous, legal grading activities may be regarded as part of an approved development proposal. Any slope which remains equal to or in excess of forty (40) percent following site development shall be subject to protection mechanisms for steep slopes."

5.2. Steep Slope Considerations

The existing slope at the northwest corner has been identified as a potential steep slope. Based on our review of available information and the Steep Slope Hazard Map (Figure 3); the slope is not steeper than 40 percent. Additionally, it is our opinion that the slope at the northwest corner of the subject site was constructed as part of the roadway embankment and is therefore a manmade slope qualifying for Exemption 2 and not subject to environmental protection measures per the City of Issaquah Municipal Code.

6.0 PRELIMINARY CONSIDERATIONS

We are currently planning geotechnical borings which will be completed at the site to support final design recommendations. The following is a summary of preliminary geotechnical design considerations for the proposed development.

- Foundations: we anticipate that most of the building will be supported on dense glacial deposits; therefore, conventional shallow foundation design will be appropriate for the building. Some mitigation strategies will be required (likely over-excavation and replacement) where fill or unsuitable soils are encountered. If appropriate, other options such as ground improvement (rammed aggregate piers or rigid inclusions) will be evaluated during the design phase.
- Seismic: There is a potential for liquefiable soils, this will be evaluated with site specific information from the borings and appropriate mitigation recommendations will be developed. Based on the building height and style no special considerations are anticipated. Standard International Building Code (IBC) design practices will be appropriate.

- Temporary Shoring: An approximately 20-foot cut is anticipated along Newport Way NW. We anticipate a soldier pile wall or other shoring system will be necessary for temporary shoring.
- Earthwork: We anticipate that the earthwork may be completed with conventional equipment. Larger horsepower excavators will be more efficient for excavating large volumes or denser soil layers.
- Stormwater: We expect that a conventional detention vault is appropriate as proposed. We understand that some dispersion is also planned for the site.

7.0 LIMITATIONS

We have prepared this preliminary report for the exclusive use of Milano Issaquah Apartments, LLC and their authorized agents for the 2300 Newport Way NW development project in Issaquah, Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to Appendix B titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

8.0 REFERENCES

Booth, D.B., Walsh, T.J., Goetz Troost, K., and Shimel, S.A., 2012, "Geologic map of the east half of the Bellevue South 7.5' x 15' quadrangle, Issaquah area, King County, Washington," USGS SIM 3211.

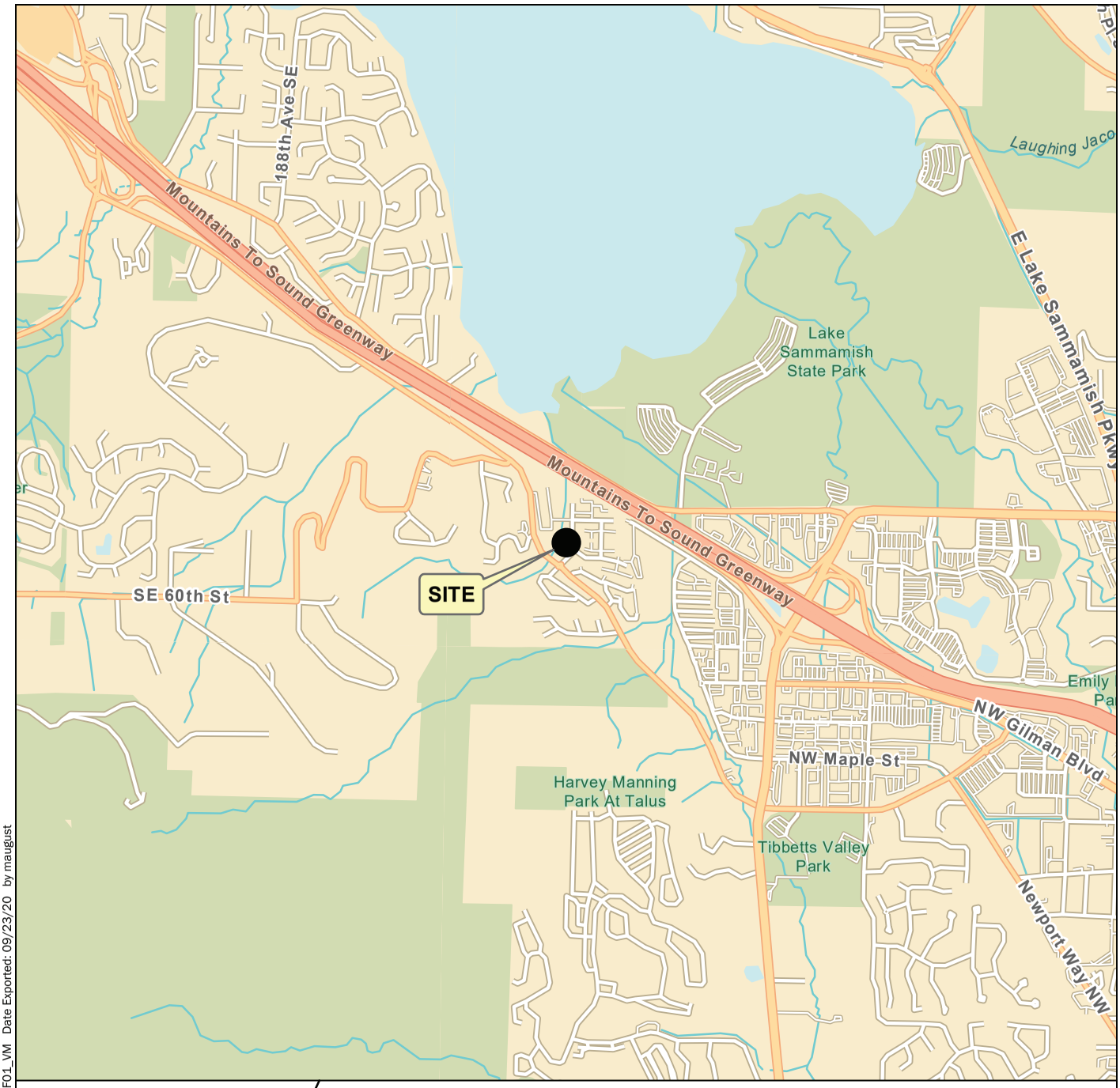
GeoEngineers, "Preliminary Geotechnical Engineering Services, AMLI Issaquah Development, Issaquah, Washington," dated February 21, 2014.

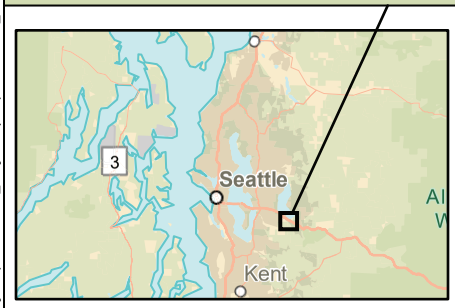
GeoEngineers, "Geotechnical Engineering Services, Issaquah Gateway Senior Housing, Issaquah, Washington," dated June 23, 2016.

GeoEngineers, "Geotechnical Engineering Services, Newport Way Improvements Project, Issaquah, Washington," dated June 6, 2018.

FIGURES

GeoEngineers





N
W E
S

2,000 0 2,000

Feet

Vicinity Map

Milano Issaquah Apartments
2300 Newport Way NW
Issaquah, Washington

GeoEngineers

Figure 1

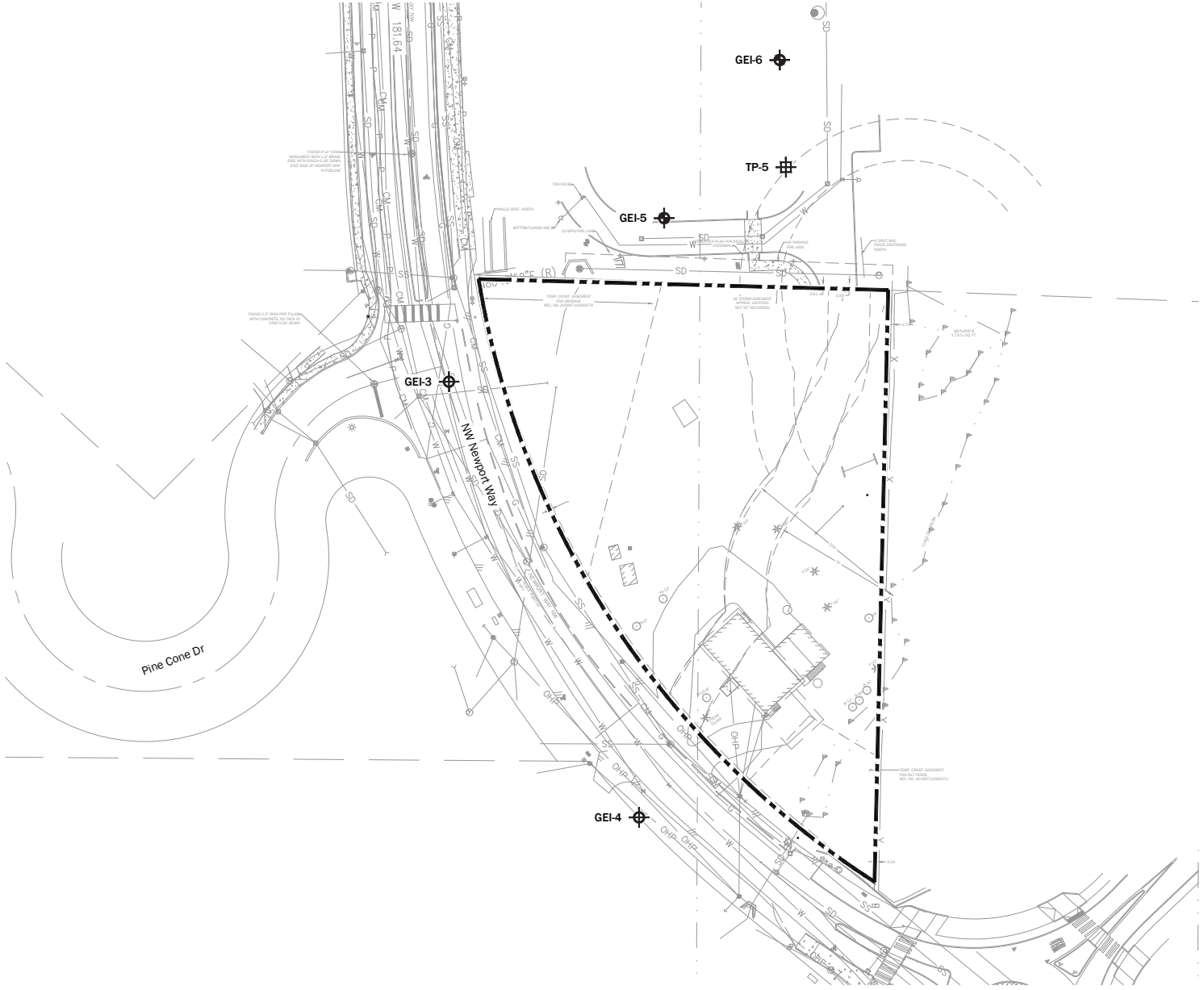
Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

P:\24\24000001\GIS\24000001_Project\24000001_Project.aprx\24000001_F01_VM Date Exported: 09/23/20 by maugust



Legend

- Site Boundary
- GEI-3 Boring by GeoEngineers, Inc., 2014
- TP-5 Test Pit by GeoEngineers, Inc., 2016
- GEI-5 Boring by GeoEngineers, Inc., 2018

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Background data from Core Design dated 01/16/20.

Projection: Washington State Plane, North Zone, NAD83, US Foot

N W E S

60 0 60
Feet

Site Plan

Milano Issaquah Apartments, 2300 Newport Way NW, Issaquah, Washington

GeoEngineers

Figure 2

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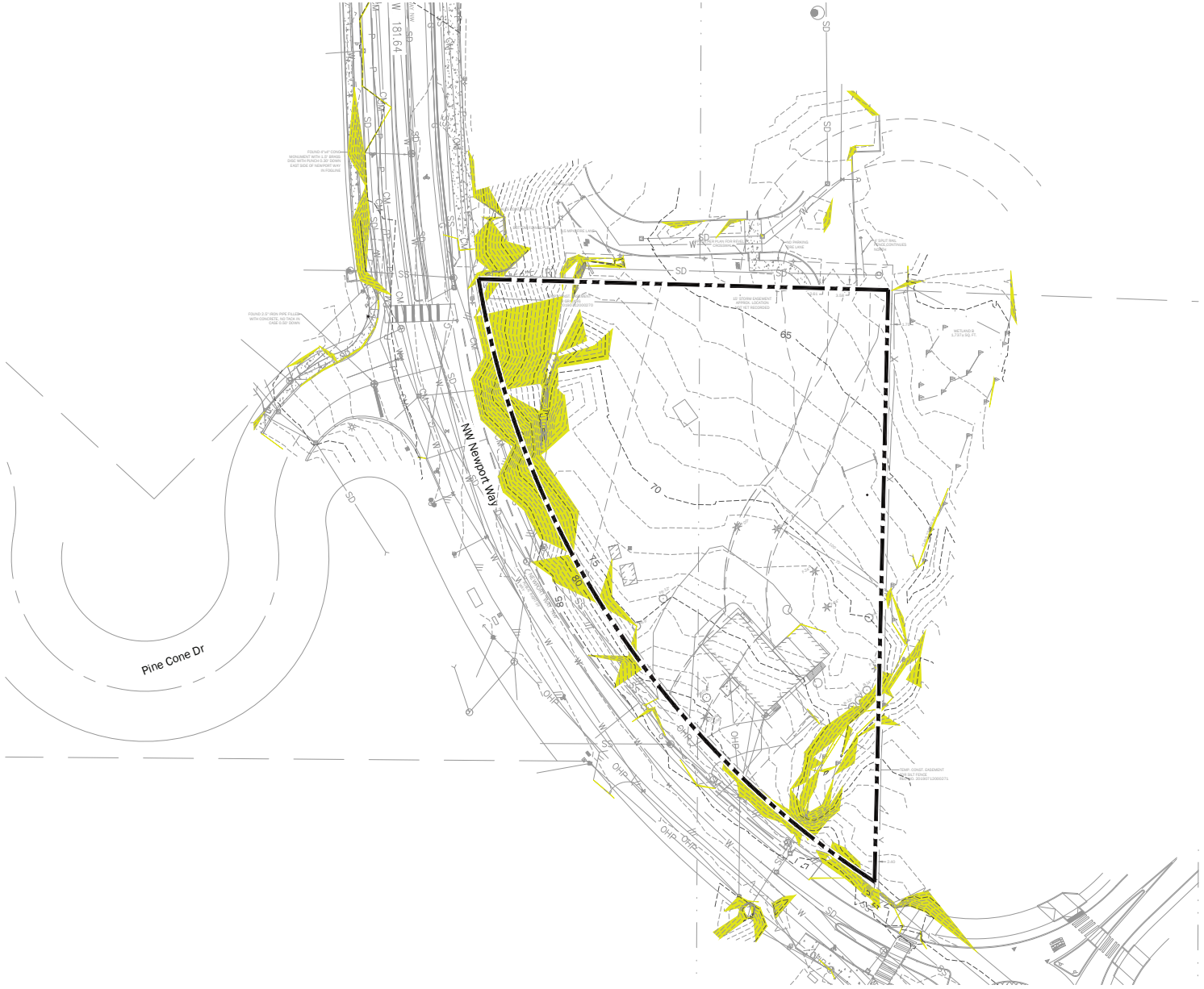

Legend

Site Boundary

Area With Slope Greater than 40%

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Background data from Core Design dated 01/16/20.

Projection: Washington State Plane, North Zone, NAD83, US Foot

N W E S

60 0 60
Feet

Steep Slopes Exhibit

Milano Issaquah Apartments, 2300 Newport Way NW, Issaquah, Washington

GeoEngineers

Figure 3

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APPENDICES

GeoEngineers

APPENDIX A
Borings and Test Pit Logs from Previous Studies

APPENDIX A
BORING LOGS FROM PREVIOUS STUDIES

Included in this section are logs from the following previous studies completed by GeoEngineers and others at the project site and its vicinity.

- The logs of 2 borings (GEI-5 and GEI-6) completed by GeoEngineers in 2014, as part of the AMLI Issaquah Development geotechnical investigation completed at the site.
- The log of 1 test pit (TP-5) completed by GeoEngineers in 2016, as part of the Issaquah Senior Center development geotechnical investigation completed at the site.
- The logs of two borings (GEI-3 and GEI-4) completed by GeoEngineers in 2018, as part of the Newport Way Improvements Project geotechnical investigation completed at the site.

The approximate locations of these explorations are shown in Figure 2.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point lead test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

GeoEngineers

Figure A-1

Rev 07/2019

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/29/2014	1/30/2014	31.5	SWM / HPD	Holocene Drilling	HSA

Surface Elevation (ft) Vertical Datum	Hammer Data	Drilling Equipment
63	Auto hammer 140 (lbs) / 30 (in) Drop	CME-850

Easting (X) Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, (pcf)	REMARKS
60	0								TS	Dark brown silty sand with organics (topsoil)			
		1	12			1			GM	Brown organic silty gravel with sand (medium dense, moist)			Rough drilling
55	5	2	10	3		2			SC	Dark brown clayey fine to medium sand with gravel (very loose to medium dense, wet)	28		%F = 22
50	10	3	3	12		3							Rock in bottom of SPT sampler
45	15	4	16	40		4			SM	Gray silty fine to coarse sand with occasional gravel (medium dense to dense, moist to wet)			
40	20	5	12	30		5				Increasing silt			
35	25	6	11	28		6			SP-SM	Gray fine to coarse sand with silt and occasional gravel (dense, wet)			
	30	7	12	31		7							

Note: Please see Figure A-1 for explanation of symbols

Redmond: Date:2/21/14 Path:C:\USERS\KJANC\DESKTOP\20017005OO.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_GEOTECH_STANDARD

Log of Boring GEI-5

GeoEngineers

Project: AMLI Issaquah Property Development

Project Location: Issaquah, Washington

Project Number: 20017-005-00

Figure A-2

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/30/2014	1/30/2014	30.92	SWM / HPD	Holocene Drilling	HSA

Surface Elevation (ft) Vertical Datum	Hammer Data	Drilling Equipment
57	Auto hammer 140 (lbs) / 30 (in) Drop	CME-850

Easting (X) Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
		See Remarks		

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, (pcf)	REMARKS
55	0					1			ML	Dark brown silt with sand and gravel (loose, moist)			Groundwater encountered between approximately 2 and 5 feet at the time of drilling
									SC	Dark brown clayey sand with gravel and organics (loose to medium dense, wet)			Fine roots
50	5		7	13		2					28		
45	10		2	5		3					32		
									SP-SM	Dark gray fine sand with silt (medium dense, wet)			
40	15		15	21		4							
									SM	Dark gray silty fine to coarse sand with gravel (medium dense to dense, wet)			
35	20		18	38		5							
										With interbedded layers of silt with sand			
30	25		20	20		6			SM	Gray silty fine to medium sand with gravel (medium dense, wet)			Driller indicates 4 inches of heave
	30		7.5	50/5"		7			SP-SM	Dark gray fine sand with silt (very dense, wet)			

Note: Please see Figure A-1 for explanation of symbols

Log of Boring GEI-6

GeoEngineers

Project: AMLI Issaquah Property Development
Project Location: Issaquah, Washington
Project Number: 20017-005-00

Figure A-3
Sheet 1 of 1

Date Excavated: 2/15/2016 Logged By: MWR

Equipment: Komatsu 120 Excavator Total Depth (ft) 10.0

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	Encountered Water	MATERIAL DESCRIPTION	Moisture Content, %	REMARKS
59	0				SOD		7 inches sod		
					SM		Brown silty fine to medium sand with gravel and rootlets (loose to medium dense, moist) (fill)		
58	1	X	1 MC					31	
	2				GP		Gray-brown fine to coarse gravel and occasional sand and trace silt (medium dense, moist to wet)		
57		X	2 %F					11	%F = 3
	3						With silt and trace peat		
56	4	X	3 MC		SM		Blue-gray silty fine to medium sand with gravel (medium dense, moist) (recent deposits)	18	
55	5								
54	6						4 inch organic lens		
53	7	X	4 MC		SM		Gray silty fine to coarse sand with gravel and lenses of silt and organic silt (medium dense, moist to wet)	36	
52	8								
51	9				SP-SM		Gray fine to coarse sand with silt (medium dense, wet)		
50	10	X	5 MC					20	

Test pit completed at 10 feet
Minor to moderate groundwater seepage observed from 6 to 10 feet
Moderate caving observed from 5 to 10 feet

Notes: See Figure A-1 for explanation of symbols.
The depths on the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.
Elevation Datum: NAVD88

Log of Test Pit TP-5

GeoEngineers

Project: Issaquah Senior Center
Project Location: Issaquah, Washington
Project Number: 12406-015-00

Figure A-4
Sheet 1 of 1

Drilled: Start 4/11/2018 End 4/11/2018	Total Depth (ft) 21.5	Logged By CL Checked By ETB	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 88 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment B-58 truck drill rig	
Easting (X) 1333697 Northing (Y) 203425		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						AC	6 inches of asphalt concrete pavement			
							SM	Brown silty fine to medium sand with gravel (medium dense, moist) (fill?)			
85					1 SA-HA				14	19	Combined S1 and S2
	5				2 SA-HA						
80											
							SM	Gray silty fine to medium sand with occasional gravel (loose, moist)			
	10	8	9		3						
75											
	15	11	19		4			Becomes medium dense			
70											
							CL	Gray silty clay with occasional sand (very stiff, moist to wet)			Groundwater observed at approximately 18½ feet below ground surface during drilling
	20	13	30		5 AL				29		AL (LL = 43; PI = 17)

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Topographic Survey.

Log of Boring GEI-3

GeoEngineers

Project: Newport Way Improvements
Project Location: Issaquah, Washington
Project Number: 0252-039-01

Figure A-5
Sheet 1 of 1

Drilled: Start 4/12/2018 End 4/12/2018	Total Depth (ft) 21.5	Logged By CL Checked By ETB	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger	
Surface Elevation (ft) 85 Vertical Datum NAVD88		Hammer Data Autohammer 140 (lbs) / 30 (in) Drop		Drilling Equipment B-58 truck drill rig	
Easting (X) 1333810 Northing (Y) 203164		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
	0						TS	Topsoil			
							GP-GM	Gray/brown fine to coarse gravel with silt and sand (loose, moist) (fan deposits)			
		4	4		1 SA-HA				14	11	Combined S1 and S2
80	5	4	24		2 SA-HA			Becomes medium dense			
75	10	6	20		3						
70	15	5	24		4			With cobbles and becomes dense			Groundwater observed at approximately 17 feet below ground surface during drilling
							GM	Brown/gray silty fine to coarse gravel with sand and cobbles (dense, wet)			
65	20	14	45		5						

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Topographic Survey. Vertical approximated based on Topographic Survey.

Log of Boring GEI-4

GeoEngineers

Project: Newport Way Improvements
Project Location: Issaquah, Washington
Project Number: 0252-039-01

Figure A-6
Sheet 1 of 1

APPENDIX B
Report Limitations and Guidelines for Use

APPENDIX B
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Geotechnical Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of Milano Issaquah Apartments, LLC and other project team members for the 2300 Newport Way Development project. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, a geotechnical or geologic study conducted for a civil engineer or architect may not fulfill the needs of a construction contractor or even another civil engineer or architect that are involved in the same project. Because each geotechnical or geologic study is unique, each geotechnical engineering or geologic report is unique, prepared solely for the specific client and project site. Our report is prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted geotechnical practices in this area at the time this report was prepared. This report should not be applied for any purpose or project except the one originally contemplated.

A Geotechnical Engineering or Geologic Report Is Based on a Unique Set of Project-specific Factors

This report has been prepared for the 2300 Newport Way Development project in Issaquah, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:

- The function of the proposed structure;
- Elevation, configuration, location, orientation or weight of the proposed structure;
- Composition of the design team; or
- Project ownership.

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying a report to determine if it remains applicable.

Most Geotechnical and Geologic Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Geotechnical Engineering Report Recommendations Are Not Final

Do not over-rely on the preliminary construction recommendations included in this report. These recommendations are not final, because they were developed principally from GeoEngineers' professional judgment and opinion. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for this report's recommendations if we do not perform construction observation.

Sufficient monitoring, testing and consultation by GeoEngineers should be provided during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by other design team members can result in costly problems. You could lower that risk by having GeoEngineers confer with appropriate members of the design team after submitting the report. Also retain GeoEngineers to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering or geologic report. Reduce that risk by having GeoEngineers participate in pre-bid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

Give Contractors a Complete Report and Guidance

Some owners and design professionals believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering or geologic report, but preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer. A pre-bid conference can also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might an owner be in a position to give contractors the best information available, while requiring them to at least share the financial responsibilities stemming from unanticipated conditions. Further, a contingency for unanticipated conditions should be included in your project budget and schedule.

Contractors Are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and to adjacent properties.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering or geology) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical, Geologic and Environmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

GeoEngineers